Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • JUNE, 1958 • 50¢

Published By Alfred M. Best Company, Inc.

Protective Clothing
SILVABESTOS†
American Optical makes a complete line of Silvabestos Protective Clothing in gloves and mittens, coats, pants, sleeves, hoods, coveralls and overalls, cape sleeves, bibs and aprons, leggings and spats. Gloves and mittens have wool liners for added insulation. Your nearest AO Safety Products Representative can supply you.

†Registered by Raybestos-Manhattan, Inc.

For Light Weight, Long Wear Protection . . .

AO SILVABESTOS† CLOTHING

Here's American Optical's new line of improved coated asbestos clothing which offers unusual abrasion resistance, lightweight, flexibility and comfort, and a heat reflection of about 40%. It is designed for operations where the high radiant heat reflectivity of our aluminized line is not required.

Abrasion tests of AO Silvabestos show increased wear resistance up to 168 per cent over conventional asbestos of heavier weight — an advantage of particular importance in gloves. What's more, Silvabestos clothing has superior tensile strength and stronger seams and does not readily absorb oil and grease.

Workers will appreciate the lighter weight of this clothing which minimizes fatigue and makes for greater efficiency on the job.

Recommended uses: Open hearth operations, heat treating, exposure to molten metal and similar exposures. (Should not be used in contact with open flame.)

Always insist on AO Trademarked Safety Products

American Optical
COMPANY
SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASSACHUSETTS
Branches in Principal Cities

1833-1958 • 125 LEADERSHIP YEARS

(For details, use Key # R-1 on card on page 1)

BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

PLANT MAINTENANCE

Off-Ground Maintenance 567
The Patent Scaffolding Co., Inc. Bulletin prescribes economical methods for ladder and scaffolding use. Shows what equipment to use for typical jobs, illustrated with actual applications.

Heavy Duty Flooring Materials . 568
Walter Maguire Co., Inc. 4-page brochure explains the use and application of heavy duty emery aggregates, bricks, bonds and cures. Information is also included on the mining and gradation of Cortland emery as an aggregate. Estimating data on each of the products depicted is also included.

Data Sheet for Safety Solvents.. 569
Brulin & Co., Inc. A new technical data sheet furnishes specifications concerning a new safety solvent that is designed to be used solely in connection with water. Solutions made up with water will not burn. Solvent is recommended for removing Diesel exhaust tracks from transportation equipment and motor exhaust stains from aircraft.

Industrial Brushes 570
Flour City Brush Co. Catalog offers a complete line of industrial brushes. Of special importance to maintenance engineers is the complete line of rotary machine and floor brushes which is featured.

Vapor Degreasing Solvent 571
Diamond Alkali Co. 12-page technical bulletin presents brief data covering the advantages provided by vapor degreasing in production cleaning and metal surface preparation for finishing operations. Advantages of this company's perchlorethylene solvent for this process are also outlined. Vapor degreasing equipment, methods and operating instructions are also stressed.

Utility Mats 572
Frank Newth, Inc. Pamphlet introduces a sponge rubber utility mat, which is said to lessen fatigue and provide a non-slip floor surface. Said to be particularly suitable for protective matting in trucks and vehicles.

Densifier for Concrete Floors ... 573
Maintenance, Inc. A new technical data sheet describes a compound designed to prevent deterioration of floors by organic compounds, reduce oil and grease absorption, and prevent the progressive breakdown of concrete floors. Also makes floors bacteriostatic and fungistatic, eliminating moldy odors. Sheet describes the applications and properties of this new compound.

Hazardous Location Lighting ... 574
Crouse-Hinds Co. Brochure gives pertinent data on explosion-proof and dust-ignition-proof mercury vapor lighting fixtures. Various styles, their reflectors and guards are outlined.

MAIL POSTAGE PAID CARD FOR MORE DATA

Dirt-Resistant Waxes 575
Multi-Clean Products, Inc. A new 4-page folder presents seven floor waxes that are claimed by the manufacturer to be dirt resistant. Performance tests indicating the quality of these new waxes are also reported.

Resurfacer for Industrial Floors 576
National Asphalt Corp. Technical data sheet reports on the savings to be accrued through the use of this new plastic floor resurfacer. Compound is a compression type material that is said to set instantly upon application and be ready to withstand heavy use one minute after application.

Abrasive Tread Flooring 577
Aluminum Company of America, Inc. Reprint gives statistics and data on slipping accidents and describes a new tread plate, light weight with an abrasive surface to provide excellent slip-proof qualities. Tread should find ready use where oil and grease present a safety hazard.

Glass Fiber Roof Coating 578
The Garland Co. Illustrated folder describes a new roof coating that has no cold flow up to 140 degrees F. Evaporation of underlying asphaltic oils is said to be eliminated by using this roof repair and waterproofing material.

PERSONAL PROTECTION

Respirator for Toxic Particulate Matter 579
American Optical Co. Respirators with U. S. Dept. of Agriculture approval for protection from toxic insecticides in dust, spray, mist or vapor form are reported in this new technical data sheet. The same bulletin also describes a respirator for protection even against radioactive particulate matter.

New Style Safety Shoe 580
Hy-Test Safety Shoe Div. Style conscious workers will be interested in this new "Chukka" type safety shoe. Folder describes its safety features and comfortable design.

Full-Vision Visor Goggles 581
Jones & Co. 4-page brochure illustrates the various models of a full-vision visor goggle. Plastic goggle is said to be impact resistant and glare reducing. Construction features include a down-angle lens that is clear or tinted.

FIRE PROTECTION

Special Hazard Fire Protection .. 582
Grinnell, Inc. A well illustrated and informative brochure outlines in some detail

(Continued on the next page)

SPECIAL OFFER BELOW VALID ONLY FOR THREE MONTHS AFTER PUBLICATION DATE

READER'S INQUIRY CARD

HOW TO GET FREE DATA! **(No Postage Required)**

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June, 1958 Please send me the following free data

Free Bulletins (Cont'd)

various types of fire hazards and offers equipment to overcome them. Booklet features a "Quick Selector Chart" to help classify fire hazards and to refer to appropriate equipment for adequate protection.

Specifications for Remote Station Supervision 583
Notifier Corp. Data sheets offer detailed specifications for the remote station supervision of auxiliary sprinklers. Alarms, signal units, power units, control units and testing equipment are described and diagrammed.

Fire Extinguisher Chart 584
American LaFrance Corp. Chart outlines the various characteristics of fire extinguishers as rated by the Underwriter's Laboratories, Inc. Operational features, extinguishing effect, capacity and extinguishing agents are highlighted. All types of extinguishers in this company's line are illustrated.

INDUSTRIAL HYGIENE

Portable Oxygen Indicator 585
Mine Safety Appliances Co. A new illustrated bulletin includes uses, operational principles and accessories for a portable oxygen indicator. Indicator can be used to show the concentration of oxygen in gaseous mixtures.

Dermatitis Preventing Hand Cleaner 586
Lixoil Laboratories. Reprint of an authoritative article by a leading dermatologist gives results of clinical evaluation of an industrial hand cleaner. Report outlines the problem of dermatitis from cutting oils and solvents, describes method of evaluating cleansers on their ability to remove cutting oils, and relates the high clinical success of a liquid cleanser in clearing up dermatitis caused by cutting oils, grease, tar, paint, petroleum products, white lead, etc. Included are case histories.

Dosimeter Film 587
E. I. DuPont de Nemours & Co., Inc. Booklet describes photographic dosimetry, a process used to determine the exposure of personnel to high energy radiation. Types of dosimeter film, exposure ranges, processing and calibration are featured. A bibliography of studies on the subject is included.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Reader's Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
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102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
111	Foot Protection
114	Welding Helmets
115	Welding Curtains
	FIRST AID AND PERSONAL HYGIENE
120	Protective Skin Cream
121	Skin Cleansers
122	Sanitary Drinking Facilities
123	Athlete's Foot Control
124	Salt Tablets
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
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133	Disinfectant—Deodorants
134	Hearing Testers
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142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
145	Drum Safety Valve
147	Fire-Resistant Hydraulic Fluids
148	Watchmen's Control Systems
149	Extinguishing Ash Trays
	LIGHTING EQUIPMENT
150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
	MAINTENANCE
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161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
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171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
174	Sling & Rope Tester
175	Safety Hooks
176	Fork Truck Steering Aid
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180	Safety Tools
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191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
194	Bulletin Boards

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Publication Office:
Columbia Turnpike, Rensselaer, N. Y.
Editorial and Advertising Offices:
BEST Building, 75 Fulton St., New York 38, N. Y.

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WESTERN
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formerly "SAFETY ENGINEERING"

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Cover picture by courtesy of Columbia-Southern Chemical Corp., Subsidiary of Pittsburgh Plate Glass Co.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

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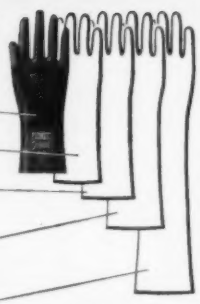
Guarantee Positive Liquidproof Protection in 103 Basic Oils, Acids, Caustics, Greases, Solvents

Black All Neoprene Stanzoils With Non-slip Grip

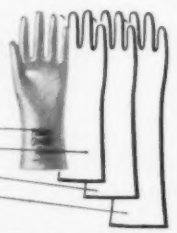
Model	Weight	Fingers	Length
N-31	Light	Straight	10½″
N-35	Light	Curved	10½″
N-32	Medium	Straight	11″
N-36	Medium	Curved	11″
N-41	Heavy	Straight	12″
N-44	Heavy	Curved	12″
N-51	Heavy	Straight	14″
N-33	Light	Straight	14″
N-54	Heavy	Curved	14″
N-71	Heavy	Straight	18″
N-73	Light	Straight	18″
N-74	Heavy	Curved	18″



White All Neoprene Stanzoils With Smooth Finish

Model	Weight	Fingers	Length
N-30	Light	Curved*	10½″
NW-31	Light	Straight	10½″
NW-32	Medium	Straight	11″
NW-41	Heavy	Straight	12″
NW-51	Heavy	Straight	14″

*Non-slip



FREE Hand Protection Analysis . . . Send a description of your job requirements (length, dexterity, wear resistance, chemicals used, importance of safe grip, hot or cold temperature extremes, fatigue factor and sizes) to our "Hand Protection Clinic." New catalog and price list available on request.

the PIONEER Rubber Company
244 Tiffin Road, Willard, Ohio

(For details, use Key # R-2 on card on page 1)

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to simplify your industrial hearing test program . . .

check employee hearing faster, more accurately

with the

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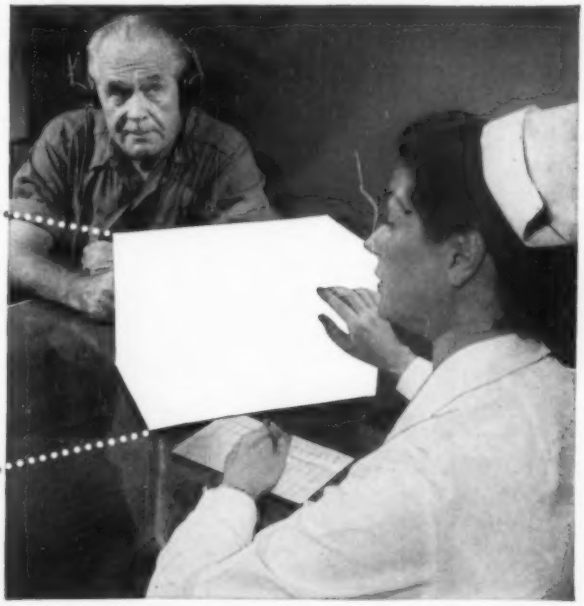
PORTABLE AUDIOMETER

Model 9-A, $295. The most widely used audiometer for industrial hearing conservation programs. Model 9-A is equipped with individually equalized double air receivers, instruction manual, pad of audiogram cards, plastic dust cover.



Hearing Conservation Programs play an increasingly vital role in industrial safety plans. To insure against future excessive compensation claims, pre-employment hearing tests by scientific audiometric methods are a necessity.

Experts agree that the Beltone Portable Audiometer gives industry outstanding advantages for testing. Leading companies have turned to the Beltone Portable Audiometer because it gives them these unsurpassed features:

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3. **Weight**—only 11 pounds—far less than most previous audiometers.
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Alfred M. Best

Publisher of *Safety Maintenance*

1876–1958

ALFRED M. BEST, publisher and Editor-in-Chief of *Safety Maintenance* and *Best's Safety-Maintenance Directory*, died in New York on May 6 after a short illness. He was 81 years old.

In 1899, Mr. Best founded Alfred M. Best Company, Inc., publishers of magazines, annual volumes, weekly bulletins and financial books in the field of safety and fire, casualty and life insurance. He was chairman of the board and president at the time of his death.

Nationally known as an insurance consultant and analyst, Mr. Best recently had been named Insurance Man of the Year for 1958 by the Federation of Insurance Counsel. In his capacity as expert counsel and impartial authority in his field, he was frequently called upon to testify before Congressional committees and courts and addressed innumerable conventions and nationwide meetings during his 61-year publishing career.

Mr. Best personally was dedicated to the reduction of tragedy and losses arising out of accidents, fires and industrial illness. Thus the Best Company was prompted to acquire in 1936 the country's pioneer safety magazine, formerly known as "Safety Engineering." To broaden the concept of safety, the publication name was changed later to *Safety Maintenance* and under his direction it has been responsible for many editorial "firsts."

He was also chairman of the 75-year-old Flitcraft, Inc., publishers of life insurance periodicals and directories, and chairman and president of Best Building Co., owners of the building in which all his publishing interests had headquarters.

Mr. Best was an enthusiastic horticulturist and owned extensive greenhouses at Peru, Vermont where he also operated a dairy farm stocked with pedigreed cattle. He was an active patron of the arts, a director of the Vermont Symphony Orchestra and an honorary trustee of the Southern Vermont Art Association. As a young man, he was baritone soloist at Brooklyn's famed Plymouth Church made famous by Henry Ward Beecher. He also sang at historic old St. Paul's Church in New York where George Washington's pew is still preserved.

In the safety and insurance field which he served for more than 60 years, the influence of Alfred M. Best long will be felt as an inspiration to those dedicated to preventing financial loss and suffering stemming from accidental casualties.

Do your employees shy away from taking salt tablets?

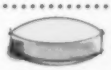
Switch to Morton Yellow Salt Tablets for fast relief without feeling ill!

You and your employees will like Morton Yellow Impregnated Salt Tablets. These are non-sickening salt tablets, made by a special patented process that uniformly coats the individual salt crystals to control the dissolving rate of the tablet. This controlled dissolving rate means that essential body salt lost through perspiration begins to be replaced, immediately but at a gradual, non-nauseating rate.

When there's danger of Heat Fatigue, workers feel better, work better and more safely, when they take Morton Yellow Impregnated Salt Tablets. Remember, they do not cause stomach upset.

Complies with Federal Specifications SS-S 31f for Type 111, Class C Impregnated Salt Tablets. U.S. Patent No. 2,665,236. Patented 1954 (Canada) No. 501,316.

Morton Yellow Impregnated Salt Tablets come in a handy Disposable Dispenser. A plastic dispenser and a golden heavy duty aluminum dispenser also are available, as are plain salt tablets.



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City_____ Zone_____ State_____

MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. SM 6-58, 110 N. Wacker Drive, Chicago 6, Illinois

A break
for men who wear hoods!

New Bullard abrasive blasting helmets and lead discing helmets are extra lightweight. Wear them for hours without fatigue. Protection from overhead hazards is afforded by a "HARD BOILED" aluminum hat used as a headpiece.

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Cape is lightweight, double coated plastic with dust-proof self adjusting inner neckband.

USE CLEAN MOISTURE-FREE AIR

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E. D. BULLARD COMPANY, Sausalito, California

BULLARD
INDUSTRIAL SAFETY EQUIPMENT

(Use Key # R-5 on Inquiry Card on page 1)

Berkeley, Calif. *June 9–11*

Third Annual Meeting of the Health Physics Society (University of California). Dr. Elda E. Anderson, secretary, Health Physics Society, % Oak Ridge National Laboratories, Oak Ridge, Tenn.

Cleveland, Ohio *June 9–12*

Eighth National Materials Handling Exposition (Public Auditorium). Clapp & Poliak, Exposition Management, 341 Madison Ave., New York 17, N. Y.

Bridgeport, Conn. *June 11–12*

Thirteenth Annual Connecticut Safety Conference (Stratfield Hotel). A. V. Short, 15 King St., Wallingford, Conn.

Cleveland, Ohio *September 16–18*

Twentieth Annual Safety Conference (Pick-Carter Hotel). H. G. Hayes, Secretary-Treasurer, Ohio State Safety Council, 8 East Chestnut St., Columbus 15, Ohio.

Rockland, Me. *September 18–19*

Thirty-First Annual Maine State Safety Conference (Samoset Hotel). Arthur F. Minchin, Secretary, Department of Labor and Industry, State House, Augusta, Maine.

White Sulphur Springs, W. Va. *Sept. 22–24*

Meeting of The Material Handling Institute, Inc. (The Greenbrier) Hanson & Shea, Inc., 1 Gateway Center, Pittsburgh 22, Pa.

Chicago, Ill. *October 20–24*

Forty-Sixth National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

St. Louis, Mo. *October 27–31*

Eighty-Sixth Annual Meeting of the American Public Health Association. Dr. Berwyn F. Mattison, Executive Secretary, American Public Health Assoc., 1790 Broadway, New York 19, N. Y.

Philadelphia, Pa. *November 3–6*

Third Annual Industrial & Building Sanitation Maintenance Show (Convention Hall). Orkin Exposition Management, 19 W. 44th St., New York 36, N. Y.

Jacksonville, Fla. *November 13–15*

Eleventh Annual Convention of the International Rescue and First Aid Association (Hotel George Washington). Max L. Spray, executive director, International Rescue & First Aid Assoc., 101 N. Alfred St., Alexandria, Va.

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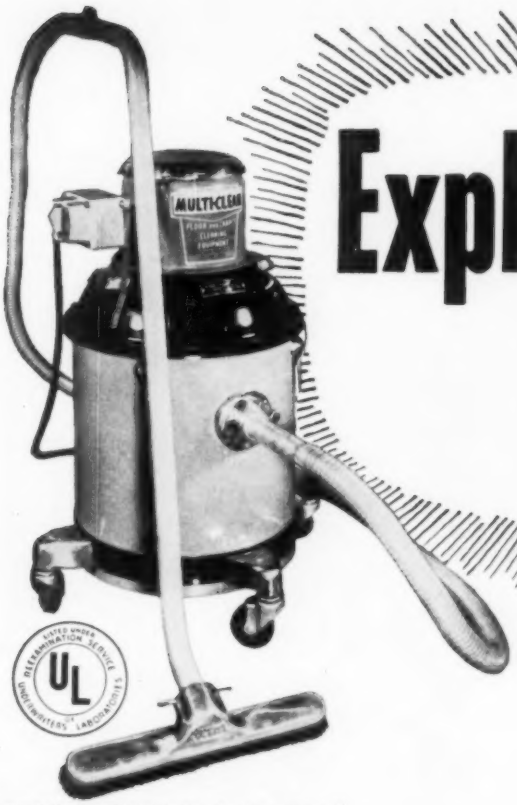

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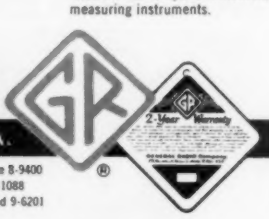

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Two Colorado teenagers examine a control box for firing model rockets, which was demonstrated at the first public meeting of the Model Rocket Advisory Council. Air Defense Command's John V. Neeson is demonstrator.

Model Missiles Mean Mayhem

by **JOHN V. NEESON**
Deputy Director of Ground Safety
Headquarters, Air Defense Command

A new problem confronts our communities. Safety engineers throughout the nation must exercise leadership to prevent injury to our children.

Kitchen chemists experimenting with a variety of fuels, amateur aerodynamicists attempting to make rockets out of old plumbing, and self-appointed amateur instructors in rocketry are the problem children of the Rocket Age. From a safety standpoint, we can no longer be ostriches ignoring the problem. The American Rocket Society is working on the problem of making it possible for young people to see tests of actual rockets at industrial and military sites. However, this represents a pallid substitute for first hand experiments by the children themselves.

The news about Jupiter, Vanguard, Sputniks and other rockets and missiles has set off a chain reaction among youngsters all over the country. Teenagers and preteen children are killing and maiming themselves on a wholesale scale handling live rockets, compounding new and different propellants and experimenting with dangerous explosives.

Typical of the problem generated by this enthusiasm in amateur rocket research was the experiment conducted recently by four Colorado youths. These youngsters, all about 15, rigged up a two-foot rocket from a 1½" pipe. When they attempted to fire it, the rocket first appeared to be a dud and then exploded as the boys approached it. Charles O. Shanks of Glenwood Springs was taken to Denver's Children's Hospital with a badly mangled left arm and other severe injuries of the abdomen.

George Sutton, president of the American Rocket Society in an article in THIS WEEK MAGAZINE (February 2, 1958) described the chief hazard as "the simple fact that practically anyone can go out and buy the materials for a homemade rocket, complete with fuel that explodes."

The American Rocket Society conservatively estimates that about 10,000 youngsters belong to several hundred rocket clubs throughout the country. Sutton said that nobody can possibly count the number of other youngsters who are working in small unorganized groups. These youngsters are experimenting with explosives-mixtures that trained chemists would not handle. And with disastrous results!

There appears to be a real conflict as to whether amateur experimentation can be conducted safely. The record shows that unsupervised experiments have resulted in deaths and injury. The National Safety Council has recently announced its policy opposing amateur experimentation with rockets and rocket fuels. However,

the Army Ballistic Missile specialists are printing a booklet to guide youngsters in such experiments. Air Defense Command has taken the lead in promoting community rocket councils. The NFPA has a somewhat contradictory stand on the matter. (See Safety Maintenance for March 1958.) The Atlantic Research Corporation and other firms are working on booklets to guide aspiring young rocketeers. Apparently there is strongly divided opinion.

We have to be more positive. A ban by the National Safety Council, the NFPA or the National Education Association will not suffice. About half the states have anti-rocket and fireworks laws. Needed now is a strong program of legislation and enforcement or a strong program of education, supervision and guidance for these youngsters. We need a realistic and unified approach. The head-in-the-sand method may be all right in some fields, but these youngsters want the joy of working with their own ideas. Our safety people have to take the lead and provide the control, guidance and supervision so essential to safe operation.

Organizations and activities that have already taken some cognizance of the problem are too numerous to mention here. A few examples should provide a fairly well-rounded picture of the situation as it exists at the moment.

Dr. Wernher von Braun, Technical Director of the Army Ballistic Missile Program and his associates at Redstone Arsenal are currently at work on a booklet containing information on precautions to use in building and firing a rocket.

Major General H. N. Toftoy, Redstone Arsenal Commander, announced that the Ballistic Missile Agency will provide science teachers up-to-the-minute data "on the safety aspects of propulsion and ignition systems, safe handling procedures, safety distance factors and other related subjects."

Colonel Broun Mayall of the Air Force Air Defense Command Headquarters in Colorado Springs was instrumental recently in the formation of the Pikes Peak Rocket Advisory Council made up of civic leaders, military personnel, industry people, high school teachers and counselors. This council was established with the view of providing organized supervision and assistance to amateur rocket groups. Colonel Mayall said, "Experiments in new designs and ideas should be encouraged. They are the groundwork which brought this country's rocket program where it is today. Naturally, there have to be some safety rules. We know what those rules are and we want to pass them along for use by our youngsters. **Our goal is safety.** We propose to achieve this by supervision, guidance and control of rocket flying and experiments. We will furnish all the information we can get to interested groups and we will arrange for firing areas for model missiles, static

(Continued on page 50)

ROCKET SAFETY RULES

1. **Don't experiment with rockets, fuels or chemicals unless you have expert supervision.**
2. **Work with inert models and study design and try to solve your problems on paper.**
3. **Don't experiment with liquid fuels like oxygen, nitric acid or gasoline.**
4. **Don't use zinc and sulfur. This is highly dangerous.**
5. **Don't use chlorates, perchlorates or nitrates as they are extremely sensitive in combination with organic materials and hydrocarbons.**
6. **Don't try to mix your own fuels or propellants. As for solid propellants, a binder is vital. A solid propellant charge must be thoroughly mixed. Cracks and air bubbles are as great a source of danger as loose powder. It's better and cheaper to buy commercially prepared rocket motors.**
7. **Remember that most chemicals used in rocketry are poisonous and dangerous to handle.**
8. **Don't use metal in model missile construction. Rockets should be made of balsa, paper or light cardboard.**
9. **Clear with CAA, Police and Fire Officials if you are to test any rocket. It would be better to use a static test stand and thrust measurement devices rather than an actual launching.**
10. **If you want to fire a test rocket you must have expert supervision. Clearance from CAA and local authorities is required as well as sufficient insurance. A safe area and a remotely operated firing system are mandatory and your rocket must have a positive parachute recovery system. Make sure before you fire, that you use a launching tower; that the wind velocity is not too strong; and that you have a safe area from which to watch the test. Above all, make certain that the area is cleared of spectators.**

polarized light sees through fog

A polarization technique that greatly increases contrast—and thus visibility—in fog, haze, and smoke has been developed at the Research Division of New York University's College of Engineering. With either visible or infrared searchlight sources, the new method makes it possible to see clearly objects that would otherwise be completaly undetectable.

The technique was developed in a project sponsored by the United States Air Force and directed by Alan Nathan, research scientist in the Division.

The basis of the development, Mr. Nathan explains, lies in the optical properties of polarized light. When passed through a polarizing filter of glass or plastic, light rays are made to vibrate in one direction only. Once polarized, these rays can pass through a second polarizing filter only if their vibration is in a direction parallel to that of the second polarizer.

The new technique involves the use of a pair of these polarizing filters oriented to pass rays whose vibrations are at right angles to each other. One such polarizer is placed over the light source, and the observer views the illuminated scene through the other. The glare caused by the light scattered from the water droplets that make up haze or fog is blocked from the eyes of the observer by the second polarizer. This happens, Mr. Nathan says, because the water droplets do not change the polarization of the light they scatter back to the observer. Solid objects, however, do cause some depolarization and therefore can be seen by the observer.

Mr. Nathan pointed out that the NYU method is somewhat analogous to that of a haze filter on a camera. Just as a camera filter screens out certain colors to make a view clearer, so a polarizing filter screens out a certain portion of the light bounced back by fog and reveals a more distinct scene.

A photo of a printed card, enveloped in dense smoke and illuminated by an ordinary headlight, is shown here.

Same card under identical conditions as above except that crossed linear polarizers are on camera, headlight.

The technique, he said, has a number of potential applications.

A pilot making a landing approach at night in a fog would be better able to see the runway if the lights on the ground and his plane lights were cross-polarized. The method also might be useful for checking scenes on the ground.

The technique could supplement or substitute for radar on ships and boats. It would be especially useful at short range or in crowded harbors, where the effectiveness of radar is limited.

And if applied to an automobile's fog lights and windshield visor, Mr. Nathan added, the technique would make visible, even in dense fog, oncoming automobiles and objects in the road.

The results obtained from the polarization technique are in many instances startling, as shown by the accompanying photographs which show a printed card 50 feet from the camera in a dense smoke from four smoke candles. The first picture shows the scene as it appears to the eye when the card is illuminated by an ordinary headlight. The second picture, taken under identical conditions, except that crossed linear polarizers were placed over the light and the camera, shows the extent of the improved visibility.

The cross-polarization technique is effective only for an observer whose location with respect to the light source meets certain geometric conditions: (a) the observer may be located close to the light source and must then look out along the light beam, or (b) the observer may be located anywhere within either of two planes at right angles to each other, whose line of intersection lies along the axis of the light beam. These two planes are parallel to the direction of polarization of the two crossed linear polarizers.

check your materials handling accidents!

Receiving Room Hazards

1. Inadequate and cluttered space (Similar to the receiving dock problem).

2. Insufficient light for checking of merchandise.

3. Excessively high stacking (because the space is too small) endangers personnel.

4. Handling equipment bringing in incoming freight from the dock and removing it to production must snake its way through narrow obstructed aisles, or no aisles at all.

5. Work and storage areas are not clearly marked.

6. Column spacing often interferes with operations.

7. Floor load capacity may be inadequate for the newer handling equipment needed to move larger loads.

8. The handling equipment provided may be unsuitable or inadequate. (For actual examples of improper equipment, see the text.)

9. Handling equipment may not be used properly. (See text, for case histories.)

10. Handling equipment may not be properly maintained:

a. Leaks in the tilt cylinder packing of fork lift trucks. This condition reduces the operator's control of the load, increasing the hazard involved in piling shipments in small areas.

b. Wheel bearing improperly packed, causing oil and grease to be deposited on the dock and receiving room floor.

c. Flattened and spalled wheels on hand trucks, increasing the effort required to push the trucks.

d. Racks on four-wheel trucks are bent or broken, endangering the men pushing them.

The basic key to a successful safety program in any area is proper planning. Yet, there are very few examples of properly planned materials handling programs. The reason for this condition probably lies in the fact that industry ordinarily treats materials handling as a "step child." In many firms, operating management finds it far easier to secure an appropriation for a new production machine than it does to push through one a quarter as large for materials handling equipment and facilities.

This attitude is prevalent, not only at the Board of Directors level, but also all the way down through the foremen. Since receiving, storing, moving and shipping adds nothing to product value, but only to product cost, this attitude is understandable, even if it is wrong.

Another contributing cause is that handling cost usually is buried in overhead, which the average department supervisor feels he cannot change. Handling facilities, similarly, are consigned to the outermost and poorest space in the plant, and the department supervisor treats them as a necessary evil.

Supervision of handling and storage operations ordinarily is spread over two or more departments and several supervisors within each department. Each supervisor concerned is inclined to concentrate on the items for which he is solely responsible, since he personally must account for performance in these areas. With no one man re-

Receiving Dock Hazards

1. Except in the most modern plants, the dock is usually too narrow for proper operation of handling equipment, and access to the receiving room is inadequate. On many docks, fork lift trucks and other powered equipment can be used to unload trucks and cars only if these vehicles are spotted directly opposite the door.

2. Docks are often located on the side of the plant toward the prevailing wind, rather than away from it. Since many of them are open, and few are completely closed, docks usually have the hazards caused by wind, rain, snow and ice.

3. When docks are narrow, they become cluttered with fork trucks, two and four wheel hand trucks, dock plates and similar equipment. Drivers and clerks are forced to walk around, or step over, such items, with consequent risks. This condition is aggravated if incoming shipments are stored on the docks waiting for receiving clerks to write up the papers required for their movement to ordering departments.

4. There is an inherent hazard in any location where men must work close to an unprotected platform edge. This hazard seldom can be removed completely. However, some receiving docks are not equipped with adequate bumpers. Trucks backing into such a dock gradually crack and break the lip of the dock. Resulting irregularities greatly increase the danger of accidents.

by **RICHARD C. SWEENEY**, Associate
Drake, Startzman, Sheahan & Barclay
New York, N. Y.

How to spot potential dangers in receiving, transport, storage and shipping.
How to set up a safety program for materials handling.

sponsible for all handling and related tasks, nobody must answer to his superior for proper planning and performance in these areas.

So, we find that very few plants have planned and developed a proper materials handling program; and even fewer have included adequate safety provisions in their programs.

As a matter of fact, safety hazards which production management would not tolerate in production departments exist on receiving docks, in storage areas, and in shipping departments. To prove this, let us take a tour through a typical industrial plant and point out the types of hazards which we find in the materials handling operation. It should be pointed out that the illustrations given here are not imaginary, each one of them I have observed in one or more plants in which I have worked.

We begin our trip on the receiving dock. The accompanying material outlines some of the hazards.

Just as receiving docks are often inadequate, so are receiving rooms, and for the same reasons. (See the accompanying check list for Receiving Rooms.) Our company has worked in several plants where the receiving, clerical and storage functions were performed in a main plant aisle. Receiving clerks and incoming merchandise competed for space with fork lift trucks and tractor-trailer trains supplying production. Result, a bad safety hazard.

Even when this condition does not exist, many other dangers can be found. In some cases, equipment provided may be improper or inadequate. Recently, we found a 10,000-pound capacity industrial crane being used to unload 10-foot cases weighing no more than 400 pounds. The crane was too large

for available aisle space. Every time it entered receiving, clerks working next to the aisle, with their backs to it, were endangered by the swinging boom and crane body.

In another plant, we found four-wheel hand trucks whose dead weight was nearly 1,000 pounds being used to move shipments whose weight averaged not more than 50 pounds per shipment. More men continually ran the risk of injury by pushing heavy dead weights.

Pry bars and rollers often are used to unload heavy palletized or skidded crates of machinery from freight cars or highway trailers.

Drums and barrels are moved long distances by use of two-wheel hand trucks. In one instance one man was expected to move loaded 55 gallon drums by two-wheel hand truck from a receiving and filling operation, across a distance of 100 feet, up a 7 percent grease soaked ramp to the next floor above, and then put them in storage locations up to 75 feet away. This operation was a steady eight hour job—and it was in the packaged warehouse of a major oil company.

Improperly Used Equipment

Equipment may not be used properly. Recently, I saw what could have been a serious accident when an industrial mobile crane operator attempted to drag a shipment out of a closed van truck by use of single prong case hooks. As might be expected, the case hooks pulled out of the shipment when tension was applied to the sling. The hooks snapped back toward the crane and one of them hit the operator in the leg with a force great enough to cause him to "black out" for an appreciable period. If the impact had been a few inches higher, the man might have lost his life. Of course, the crane should not have been used for this job in the first place, but case hooks of this type were never intended for side pulls.

In the receiving operation of a food manufacturer, one of the clerks attempted to pull a loaded four-wheel truck along the dock. It was raining, the dock was unprotected and slippery, and the cart had to be moved along the dock edge. The clerk lost his footing and slipped down between the dock edge and a rail car, pulling the loaded cart after him. Although the man lived, he spent months in a hospital and will be bedridden for the rest of his life.

Production Areas

After looking at the receiving dock and receiving room, we move on to the plant itself. Many of the conditions contributing to accidents in receiving are also prevalent in production areas, although usually not to the same degree. Also, several additional items are readily apparent.

Overhead Cranes: Although some receiving docks have overhead cranes and hoists, they are most prevalent in production departments. Cranes introduce a new dimension to the safety picture. In addition to watching forward, backward and on both sides, all personnel must keep an eye on overhead movements. While working in a steel mill, I watched an attempt to move an unstrapped lift of oiled steel sheets, by crane, a distance of about 150 feet. Because another crane did not move out of the way fast enough, the crane carrying the sheet steel was forced to stop suddenly. There was no provision to keep sheets from sliding out of the ends of the lift—and that is exactly what they did. Sheets literally sprayed out over a wide area before the crane operator could lower the load to the floor. The only reason that no one was killed was that the accident happened over a stock storage area, rather than over production machines.

Use of Cranes

Cranes are often used to stack material where it is necessary to store in piles too high and too close together for handling by any other means. If storage stacks are planned improperly, crane operators may be forced to make lifts when they cannot see what they are doing. When this happens, the hooker or crane follower is responsible for seeing that no one is behind or near the stacks. If the hooker does not fulfill this responsibility conscientiously, another hazard is created.

Overhead Conveyors are another feature of many production areas. In most cases we have found that adequate guards are provided for such equipment in all areas except at loading and unloading stations. Of course, these stations are where more people are concentrated than at any other point along the conveyor length. It is not possible, ordinarily, to surround conveyors at loading stations with pierced or solid metal guards, since these would prevent clear access to the work-in-process being moved. However, extreme care should be taken to prevent men from being exposed to injury. Another basic requisite is a stop switch, in an easily accessible position at each such station, in case materials or men become tangled with the line.

Aisles: A feature found in many plants is combined personnel and materials handling aisles. In some cases, the only personnel access to the plant utilizes the same aisle which also carries much of the fork truck traffic through production. The usual explanation for such a condition is that plant space is too valuable to separate pedestrian and vehicular traffic. However, these same plants often have "dead" areas around the walls required by fire underwriters, or left free because overhead cranes cannot service them. Such spaces are ideal for personnel aisles, because the hazards are substantially reduced. In other plants, it is possible to keep all persons not employed in a production department out of the area entirely. The safety record of companies like J. J. Heinz, which run regular tours for sightseers through their plants, demonstrates that this hazard can be licked.

Machine Arrangement: In many plants, particularly the older ones, new production machines are added wherever room can be found. Even though the original layout provided enough space, after a few years machines are crowded together like sardines in a can. When machines in such an area must be supplied with work, or when completed work must be

removed, operators often are endangered. This condition becomes worse in noisy areas like punch press departments, where machine operators may not even be aware that fork lift trucks or cranes are close to them.

Storage Banks: Another common affliction of older plants, also caused by crowding, is inadequate storage banks. With not enough space to store materials near the machines which require them, materials handlers are forced into dangerous practices, such as excessively high stacking or lifting two pallets at a time. The better economic conditions become, the more machines are crowded into each department. The more machinery, the less storage space. And each new machine adds at least one more operator to be subjected to the increasing hazard.

Storage Areas

When we enter the finished goods warehouse and shipping areas, we might feel that the danger to personnel is somewhat less. The sight of all of those neat piles of products arranged in ordered rows is reassuring. Yet here, too, severe hazards exist. And the first of these is the stacks themselves. Package designers seldom consider what we call "handleability" and "stackability" when designing containers. They feel their job is done when the product is protected, and the package is plastered with advertising. Yet, it is often comparatively simple to design a case so that one man can pick it up fairly easily—rather than giving two men an awkward and unsafe task. Containers are not designed for proper stacking on pallets. To pile properly on pallets, a case should be at least 1.5 times as long as it is wide, and the height should not be greater than the width. Yet, a few hours spent in a truck or Railway Express terminal examining freight will convince you that the percentage of packages properly designed as handling and storing units is relatively small.

Even if the packages themselves are adapted for storage, the stacks may represent an unsafe condition. The rule of thumb that product should not be stacked on a pallet to a height greater than the longest dimension of the pallet is often broken. Even oftener, you find loaded warehouse pallets stacked five high. Ordinary corrugated containers will not stand the strain of such high stacks for a long period. I have seen high stacks which have leaned over so far that it was extremely dangerous to remove the top pallet. Stacks at the intersection of two narrow aisles are bumped by materials handling equipment. This sometimes causes cases to tumble down from them.

Today's demand for more and more production often results in squeezing finished goods storage into smaller areas poorly designed for the purpose. This causes supervisors to try to operate with extremely narrow aisles. When a warehouse is busy and aisles are narrow, every corner could be the scene of a traffic accident.

In addition to fork lift trucks, tractors and the like, warehouses utilize order pickers, packers, stock clerks, inventory takers and similar men. They must use the same aisles, and sometimes work in the same stacks, as the powered handling equipment.

Bins and shelves are often improperly planned. In one recent instance, we found bin stacks 12 feet high. Pickers were expected to use the stacks themselves as a ladder, swarm up the stack, hold on with one hand, reach into a bin, pull out boxes weighing up to 15 pounds, grip the containers in one arm against their bodies and climb down again.

Even where such an extreme condition does not exist, picking orders in bin areas can be hazardous. Stock is often stored by catalogue number or other system which does not take into account its physical nature. Pickers are required to remove heavy items from bins at above shoulder height. Ladders are often rickety and there are seldom enough of them. Aisles are usually narrow and light is poor, compounding the problem.

Shipping Docks

The shipping dock usually presents the same picture as receiving. In many cases, they may both be in the same area, which increases the hazard.

However, there is one unique feature about shipping which should be discussed here. That is the danger caused by improper loading of outgoing trucks and cars. Wrecks and derailments have resulted from loads shifting on open cars and snagging the sides of

Warehouse Hazards

1. Containers and packages poorly designed for easy and safe stacking.

2. Products stacked on pallets to a height greater than the longest dimension of the pallet.

3. Piling too high, with therefore more weight than the lower containers can bear for a long period of time.

4. Too narrow aisles because of insufficient storage space.

5. Poorly planned bins and shelves:

- **a. Bins stacked too high and with no means of access other than using the bin shelves as a ladder.**
- **b. Improper arrangement of items with heavy items on high shelves.**
- **c. Insufficient and poorly maintained ladders.**
- **d. Narrow aisles.**
- **e. Poor light.**

trains moving in the opposite direction. Shifting loads in boxcars also cause trouble, even though improper loading practices usually only crush the containers in them. However, I have seen boxcars whose ends were buckled by the force of improperly anchored loads slamming into them during quick stops.

When we examine truck shipments the problem is much worse. Cases fall out into the road because they are improperly secured. Sometimes loads are so top-heavy that trucks will skid and overturn

Even such a brief review as this of safety hazards existing in receiving, handling, storing and shipping leads to the conviction that these areas are the most dangerous in any industrial operation. Yet, many companies pay far more attention to providing safety guards on production machinery than they do to the safety aspects of all of these functions. We find confirmation of this in our reports to our clients. Time after time, we recommend correction of obviously hazardous conditions which have existed for so long that supervisors do not even recognize them.

There is nothing new or unique in a proper safety program for receiving, handling, storing and shipping. Nobody, to my knowledge, has come up with a gimmick to ensure that a program will be carried out. The main ingredients here, as in any other area, are proper planning, immediate improvements, education, training, supervision, facilities, equipment and equipment maintenance. Each of these items is interwoven with the work of other engineers, production supervision and top management. Suggestions for your consideration in setting up and carrying out such a program follow.

How to set up a materials handling safety program

The first step in planning is to examine each area. By examination, I mean spending enough time in each operation so that you know what every man does, how he does it and why he does it. Secure any procedural manuals which your plant has on any handling operations. Study them and compare the written instructions they contain with actual practice. Note each operation, method, procedure and practice which needs attention.

After this examination, find out all you can about management's plans for the departments concerned. Make arrangements to examine any proposals for facility expansions and improvements before they are approved.

Then develop your plan. Include provisions for improving bad spots which now exist and eliminating any defects in proposed changes. Secure the help and cooperation of operating supervisors, particularly foremen, if you can. This can be done by discussing your plans with these men, and incorporating as many of their suggestions as possible.

The plan should be written out. If management is sufficiently safety conscious, the plan should be submitted for approval. Many such programs have been approved after an accident has occurred involving compensation claims. Certainly, if you can tie safety and savings together, you will have little trouble.

To kick the program off successfully, the next step is to make immediate improvements. When you begin to show results, management and men will become more interested. Interest can be generated by before-and-after pictures, articles in the plant paper, news releases on bulletin boards, etc.

However, it is important to make certain that your proposals are really improvements. Here is where the value of your study of operations is proved. Also, here is where some programs fail. In one case, an operation was under discussion involving moving 55 gallon drums a short distance. Because of low volume and other considerations, we had decided to use two-wheel hand trucks. The safety engineer asked us to include a bracket on each handle of each truck. This bracket was to be outside the handle, closed at the bottom end, and have an inside opening of 1½ inches, so that the trucker's hand could be protected from injury, especially when tipping or "breaking" a drum back to operating position. We examined the proposal and found that the truckers wore heavy work gloves which would catch in the guard, and might cause severe injury to hands; that they broke drums by using one hand to tip them back against their trucks and their hands were not at the place where the guards were to be installed; and that the guards constituted a danger to other men working in or near the aisle along which drums were trucked. The point is not that safety guards are wrong, they are very much needed in many cases. Rather it is that the engineer who proposed them in this case had not studied this particular operation thoroughly.

Coincident with your immediate improvements start a program of education. Here nothing should be overlooked. To illustrate, in only a very small fraction of the plants I have worked in have the men in receiving, handling, storage and shipping known how to lift a case—even though they lift cases 250 days a year. Time after time experienced men bend their backs instead of their legs—strain and heave at something which, by proper methods, they could lift easily. They convert a simple, mechanical act—which they have been doing all their lives, into a severe injury hazard. Here is where visual aids, and similar material, are very valuable.

In conjunction with education, it is necessary to train the operators. The first objective of a training program is to ensure that materials handling equipment operators are skilled in their jobs. Ample help can be secured by even a small company in setting up an operator training program. Most materials handling equipment manufacturers have good operator training courses available and will assist you to install them. The Armed Forces also have excellent training programs which you can obtain.

It should be emphasized that operators of powered equipment

are running vehicles which are at least as hazardous as over-the-road trucks. In many cases, skills required of a fork lift truck operator are equivalent to those of a downtown delivery driver in a large city. Personnel's assistance should be requested to provide physical checkups, depth perception and reaction time tests, and mental stability evaluations for handling equipment operators—just as they do for men applying to drive company trucks.

After men have taken the entire program, they should be tested both by written tests on safety rules, maintenance practices, etc., and by minimum performance in negotiating obstacle courses. When they pass, they should be issued a license to operate the equipment for which they have qualified. Proper notations should be made in their personnel folders.

Issuing an operator's license may look like sheer window dressing. However, the military have used this system for years with success. Operators are proud of the distinction, and do their best to earn and keep it. The card provides an easy way for supervisors to check up on whether an operator is qualified or not.

There is another practical advantage to this system. If your labor contract provides for bidding on jobs by seniority, as many of them do, you will find it impossible to keep out unqualified operators without it. However, formal training and licensing of operators provides a solid basis for securing the agreement of the union on modifying the seniority system for these jobs. Union officials are even more prone to agree when the accident hazards produced by improper equipment operators are discussed with them.

Another useful tie-in with this system is suspension or cancellation of licenses when supervisors observe unsafe practices. A point system, similar to that used by the states of New Jersey and Connecticut for drivers, can be developed for each type of powered materials handling equipment. Again, the union should be consulted and should agree with the entire procedure. But once it is accepted, production supervisors and personnel can discipline unsafe operators without causing a grievance.

Just as it is important to educate and train equipment operators, it is also sensible to educate pedestrians. We have all learned to be careful crossing the street. But when we are in a plant we blithely walk through it as if there were no danger at all. Men walk under the hooks of overhead cranes, stand adjacent to storage stacks when fork lift trucks are making high lifts, cross in front of tractor-trailer trains, all with the sublime confidence that equipment operators will watch out for them. This is particularly true of office personnel who occasionally go out into the shop. These people should be educated, along with production personnel.

The next step is to ensure that supervision requires proper safety practices on the job. We have already discussed an equipment operator licensing and license revoking system, but that system contains a valuable key to proper supervision for safety. That key is found in the establishment of rules, publishing of rules, and enforcing of rules. Remember that a shop foreman is a busy man, and that everyone makes demands upon him. If you provide him with a simple list of "do's" and "don'ts," which each of his men also has, he can enforce it. But no one ever has been able to enforce an abstract concept.

Attention should also be paid to safety facilities. Provision of mirrors at aisle intersections so that operators can see around corners, painting aisle lines on the floor and keeping aisles clear, providing proper light in both production and materials handling areas, protecting building columns and similar obstructions by proper guards, providing proper ventilation when gasoline powered equipment is used—these and similar points should be provided for.

Equipment and equipment maintenance should be features of the handling safety program. Each handling activity should be provided with the right equipment, of the right capacity, with the right accessories, and in the right quantities, to do its job. And just as important is including provisions for proper maintenance. Your plant engineer can, with the help of equipment suppliers, work out a program of preventive maintenance. Such a program should have provisions for regular checks of all operating units, adequate periodic lubrication, and repairs or replacements of defective parts. It should feature the use of simple check lists to guide the mechanic in inspecting and maintaining equipment. Manufacturers have trained mechanics available who will teach your own men how to maintain their equipment. Help can be obtained from government publications in this area also. The military has used such a system for many years and has prepared manuals which are available to you.

Some companies, particularly smaller ones, secure the benefits of proper periodic maintenance without involving their limited maintenance crews. This is done by contracting with an outside agency for the work. Some equipment manufacturers will provide this service, or it may be done by commercial garages. However, it is well to be cautious about using a garage. Just because a fork lift truck has four wheels and an engine, there is no reason to believe that it presents the same maintenance problem as a small road delivery truck. Automobile mechanics ordinarily are not trained to maintain the complicated hydraulic system, masts and other distinguishing features of a fork lift truck. If they have not been trained properly, your company may end up paying for work that it does not receive. In several cases, we have found that fork lift trucks were so poorly maintained as to be a safety hazard, even though the cost was higher than if they had used their own mechanics. This is true even oftener in the case of cranes and other electrically powered equipment. There are few or no parallels for these machines in the automotive field, and mechanics must have special training and tools to work on them properly.

From an address presented at the 26th Annual Greater New York Safety Convention. Picture by courtesy of Yale & Towne Mfg. Co.

Safe Hand in Safety Glove

PROTECTIVE CLOTHING

METAL CUTTING—Laboratory technician's hands are protected through use of neoprene-dipped canvas gloves.

Never was a tool so cunningly fashioned as the human hand. Wondrously contrived of muscles, tendons and 27 fine bones, it can adjust the sights of a microscope or smash an enemy into insensibility.

In the familiar world of today the hand is threatened with cuts, scratches, irritations, fractures, burns and bruises as it performs millions of industrial tasks requiring touch and manual dexterity. One third of all occupational injuries occur on or near it.

To reduce mishaps in its mills the steel industry has intensified its work to achieve the best safeguard of all—safety-minded employees. Its training classes, supervisory meetings and constant reminders—both oral and visual—are designed to generate individual safety-mindedness around the clock. Accident prevention is and aways has been the highest form of protection.

But in supplementing the safety programs, continual efforts are being made to furnish steelworkers with the most effective physical protection known. Workers find such protection built into special purpose gloves. It is also incorporated into special purpose mittens, hand pads, arm protectors, protective creams, sleeves, finger guards and into the machines themselves.

(Continued on page 22)

HOT BANDING—Wearing asbestos aluminum gloves, the operator is protected during hot coil banding process.

FURNACE TAPPING—Protective gloves, clothing provide shield against the high temperatures the worker faces.

There's Always a RIGHT Kind of Hand Protector for the Job

BRICKLAYING—The brick mason wears heavy hand pads while engaged in relining open hearth furnace.

PLATE SORTING—This woman employee, sorting plate, wears gloves, pads and terry cloth wristlets.

PACKAGING—Packaging tin plate calls for use of cotton gloves as protection against sharp wire.

Safety Gloves
(from page 20)

Many of the practical refinements of the glove can be found in the steel industry. For handling rough or hot objects, gloves of leather or heavy woven fabrics are available. Where there is exposure to sparks or molten metal, chrome leather may furnish protection. Plastic or rubber gloves shield against corrosive irritants and rubber also insulates hands working with electricity. Asbestos gloves protect hands from heat and flame.

But the list of material protection does not end with variations on the glove theme. Many safeguards are built into modern machines themselves. Trim, streamlined machines of today equipped with individual motors have largely replaced hazardous overhead belts and shaftings. The danger of servicing remote bearings are often minimized by pressure lubrication. Critical zones of operation are frequently highlighted with distinguishing colors.

Standards guards are now installed on old machines while newer machines generally come with guards already built in. Again, in these cases, the boundless ingenuity of the safety engineer can be discerned. Some guards make it impossible or at least unnecessary for an operator to reach into the area of danger; others forcibly push hands away; still others shut off a machine's power as the hand comes dangerously close to a hazard.

Whatever the form of protection —the personal protective device, the machine itself or a combination of both—its sole concern is the safety of the wonderful human hand, still the finest tool ever made.

Material by courtesy of "Steelways," published by American Iron and Steel Institute.

Safety Training Course

Colby College, in Waterville, Maine, has announced a Safety Training Course for five days, June 23–27. The course is designed especially for safety personnel, personnel managers or those responsible for safety. It is divided into two sections: Basic Safety Course, to give those entering the safety field a place to learn their job; Advanced Safety Course, to upgrade those already in safety work. Classes will be conducted by authorities on various aspects of industrial accident prevention.

A fee of $75 will be charged for the course and includes tuition, living quarters and food. Further details can be obtained from: Mr. William A. Macomber, Director of Adult Education, Colby College, Waterville, Me.

A SAFETY IDEA

First Aid Training

If and when an accident occurs on some isolated military construction project far from doctor or hospital, inspectors on the job for the U. S. Army Engineer District, Alaska, are trained to handle first aid.

The construction inspectors, and other employees of the Alaska District who desire the course, are given intensive training in both standard and advanced Red Cross first aid.

In charge of the classes is Mrs. Martha Jess, of the District's personnel branch, instructor-trainer in Red Cross first aid. Instructors are Dan Wise and Mrs. Kathleen Hostetler, and the District nurse, Mrs. Tena Rozell, assistant.

For inspectors on military and civil works construction throughout the Territory, supervised by the Alaska District, the first aid courses are a "must" required by safety regulations. For other District employees the courses are optional. More desired to register for the course than could be handled in the present sessions. Lectures and practical demonstrations are given in the various types of bandages, slings, tourniquets, splints; also artificial respiration, blanket and stretcher carries and other emergency treatment.

pitfalls of modern solvents

The biggest one lies not within the solvent but within the man who picks it out.

by **JOHN B. MOORE**
Technical Service Representative
John B. Moore Corp.

In these times of Cold War and international tensions, we are inclined to fall into a military manner of thinking. Take, for example, the phrase: "The Calculated Risk." To the military mind it means that lives will be lost, but the problem is to estimate how many. It is a question of logistics. If too many lives are lost, the battle is lost.

Our civilian and industrial life tends to be colored by the same reasoning. While it is true that the end result is the same—if we lose too many lives, we lose the business—we too often forget that we are not dealing in military logistics . . . **and that we need lose no lives at all!**

This premise holds as true for the handling of solvents as it does for explosives. The main difference is that the lethal potentialities of explosives are recognized and those of solvents, too often, are not. It must be taught and retaught that **all solvents are dangerous.**

When we finally learn that we are dealing with materials that are potentially hazardous, we have won half the battle. There are then but two steps remaining:

First, to evaluate the hazard;

Second, to learn the means of control.

To evaluate the hazard means to know the product, its purpose, the means of its application and the people who use it. As these things become known, the means of control become clear and, actually, are the application of common sense.

Perhaps this sounds like an oversimplification of the problem; but let's expand the idea and see.

A good starting point is to define "solvents." In industry, a solvent is a liquid which usually is used to dissolve and remove unwanted substances. In the early days of industrial growth the problem was quite simple. Equipment, in comparison with that made today, was crude and the word "tolerance" was largely a religious or political term. If the solvent removed most of the visible soil, it was considered quite satisfactory. So, most of the solvents used were either kerosene or alcohols.

As industrial need progressed and precision manufacture entered the picture, the need for more highly refined solvents also grew; and with this came an acute need for greater varieties of them. At the same time, the growth of industry required a substantial increase in the volume and use of solvents. As a result, accidents, fires and poisoning also increased. Finally, in the last fifteen years, we have seen tremendous strides in the recognition and control of the fire hazards of solvents, as well as of their toxic implications.

Unhappily, many men seem to have a stubborn streak of pride in their physical prowess. They seem to believe that it is only the other (and weaker) men who can't take the exposure to solvent vapors. So, while they will buy the idea of fire safety, when it comes to toxic hazards they feel the efforts of the industrial hygienist are meant for everyone else except themselves.

Complexity of Modern Solvents

But the question of making employees aware of the health hazards of solvents is only part of the problem. We have witnessed the expansion of solvent types from the early days of kerosenes and alcohols to an ever-widening list of derivative products, such as coal tar solvents, chlorinated solvents, furfurals, petroleums and a whole host of synthetic chemicals, plus an ever-increasing group of blends which are tailored to the hungers of the industrial belly.

Where once our problem was simple, its complexity now runs beyond belief. Formerly, we had to deal only with individual hazards from easily identified chemicals. Now, we have all shades of those chemicals, plus many for which there has been no time for proper investigation—and, on top of this, mixtures and blends which may or may not produce combined effects that cannot be estimated or foretold.

In truth, we have built a kind of Frankenstein, not one which necessarily will destroy us, but rather one which could, if we are careless, seriously cripple our capacity to grow.

Is this picture too grim? I think not, but, on the other hand, the history of the safety engineering and industrial hygiene movements is ample evidence that **we are quite capable of meeting this challenge.**

The title of this article, "Pitfalls of Modern Solvents," is meant as something of a challenge. The potential dangers of modern solvents are stressed because the improper selection or improper application of solvents can result in destruction all out of proportion to the dollar value of the materials involved. On the other hand, the advantages of modern solvents should not be overlooked either. Let us, then, try to get down to the essentials of three terms: "modern solvents," "their advantages," and "their pitfalls."

First: What are "modern solvents"? Without detracting in the slightest from those developers to whom credit is due, we can say that modern solvents are merely more highly refined versions of earlier products, which have been adapted to our current industrial needs. To this rather wide group of basic products and their fractions and refinements, we must add the more recent technology of their combinations. In general, in the first grouping are products which are made by basic chemical manufacturers and petroleum refiners. The second classification is made largely by the chemical specialty companies. These specialty companies, in the main, draw their raw materials (which are, in fact, the finished goods of the chemical and petroleum producers) from the chemical and petroleum manufacturers. They then apply their arts to the blending of these materials to make their end-products, which are the specialized tools of today's industry.

In general, the basic producer is a volume manufacturer who, by the demands of his enormous investment in plant and equipment, must tailor his products and sales effort to large volume markets. It is much too costly, hence impractical, for him to attempt to give his customers the kind of services which the chemical specialties companies are geared to render. However, because of the great quantities of basic materials he sells, the basic producer must and does devote much time, effort and money to the investigation of the safety and hygienic aspects of his products. By the same token, the specialties manufacturer, who by comparison deals in relatively small units of sale, is seldom able financially to do more than token testing. It is indeed fortunate that this situation is recognized by the basic producers and that most of them have gone to great lengths to place this information they have developed in the hands of the industrial community for the common good.

There still remains a gap, however. The specialty manufacturer who blends his product must still rely on his own judgement of the relative hazards of his products when placed in actual use. His basic supplier, though happy to get the business for the one or more components he may furnish, does not feel he properly can bear the costs of tests of his customer's final product—nor the implied responsibility which might be saddled on him were he to do so. He does supply to his customer not only the data concerning his component products, but often his opinion which, though unofficial, is most helpful. The end-result is that the statements of the specialties manufacturer in regard to the health hazard of his product must be accepted as being that of his informed opinion.

But, how far can one go in accepting claims for the safety of a product? The best counsel is to accept all claims in the light of the reputation of the supplier and his willingness to disclose sufficient information about his product to permit verification of the basis for such claims.

Advantages of Modern Solvents

In dealing with modern solvents and their advantages, we are actually dealing with the applications for solvents. The implication which arises out of the use of the word "modern" is one of wider and more specialized utilization. If our present-day equipment and its maintenance didn't need better tools, none would be developed. In short, industry says, "We've got more critical work to do; we need better tools."

Modern solvents are better tools. To employ better tools profitably they must be used by skilled workmen; and skilled workmen are skilled because they know how and when to use proper tools. Therefore, the advantages of modern solvents can only be gained by those who are willing to devote the time and thought necessary to learn their use—and, what is more important, when and where NOT to use them.

It is well to remember that progress is not always easy and that there are still those who would tout the "universal" solvent—that is, claim that one particular product will do everything that may be required in plant operations. This sort of talk is not always confined to small, lesser-known companies, but sometimes comes from nationally-known organizations. At one time carbon tetrachloride was the "universal" solvent. It wouldn't burn, it cut grease well and it dried fast. It also softened rubber, caused rust, was very wasteful because of its fast evaporation, and, of course, was finally shown to be extra-ordinarily toxic—and cumulatively so. In recent years a newcomer has been born which has properties closely similar to carbon tetrachloride in all respects except toxicity. And in many places it is taken as the answer to the maiden's prayer. Safety? Yes, at a price!

It's a good thing that pride of workmanship still exists. To explain this point, let me describe a situation I encountered. A safety engineer had asked me about mod-

ern solvents and we had discussed certain problems related to the care of electrical equipment on one of the dredges in his charge. I described the properties of the solvent that seemed to me best suited for this work. He listened carefully and then told me he had made the use of methyl chloroform mandatory as a matter of fire safety and that the electrician's mate was well satisfied. Subsequent events led to an invitation for me to visit the dredge. In five minute's time I found out that the electrician's mate had carefully read the safety order and complied by ordering a drum of the required product . . . and, along with it, a drum of mineral spirits. He had his crew carefully mix batches of the two, in equal proportions, just before using. He said he couldn't afford to foul up his insulation by using the solvent uncut and, besides, he had great trouble with moisture condensation because of the high vaporization rate. He also said he didn't dare mix too much ahead of time because the mixture wasn't stable.

The safety engineer of course was upset to find unauthorized mineral spirits aboard the vessel; but the electrician's mate stood firm, maintaining that it was his responsibility to keep the vessel and its equipment in top operating order.

Fortunately the safety order was revised and the electrician's mate is happy. So is the safety engineer.

The principle involved in this incident is that the good workman will gravitate to the use of proper tools. When he is denied them, he will attempt to fashion his own.

A further application of this principle will be found in another illustration. I have been working with a large electric power company to effect a solvent standards program for them. They had been using over twenty different solvent cleaners to maintain eight generating plants plus sub-stations, meters, instrumentation, transformers, power-sampling and combustion control devices. Aside from the burden placed upon purchasing and cost control, the safety department was faced with an even more difficult problem of hazard control. Despite the availability of modern solvents, I found widespread use of benzene, methanol, and carbon tetrachloride in almost all locations. The men, when questioned, proved generally to be aware of the fact that these materials were considered hazardous. When advised that products which were tailored to their several needs had been developed, they were more than willing to adopt them.

We found, for example, that the use of methanol, benzene and carbon tetrachloride in meter and instrumentation cleaning had been adopted because these products left no undesirable residues. But we also found that they dried too fast and that moisture condensate, from the rapid speed of evaporation, was a constant headache. We selected a modern solvent which left no undesirable residue, dried more slowly,and, as well, met both fire and toxicological safety standards. The approval by those who used the materials was universal and a potential source of danger was eliminated.

It is, however, interesting to note that one group of instrumentation people found that extremely fast drying was a necessary property of the solvent they required for cleaning combustion control equipment. Our old friend, "Carbon Tet," was their standby. Because the equipment was out of service during such cleaning, the time factor was of prime importance. Moisture condensate was of no consequence. Here, we found that methyl chloroform accomplished the same result and reduced the personnel hazard to negligable proportions.

No Salt Tablets . . .
. . . $15,000 Damages

A widow was awarded $15 thousand damages from a railroad company following the death of her husband who suffered a fatal heart stroke while working with a section gang in Missouri.

The jury found the railroad had been negligent in failing to instruct its foreman in first aid methods and in failing to provide salt tablets to section gang workmen.

The final results achieved with this power company is that:

1. They now operate with four solvents instead of twenty.

2. The safety department has complete knowledge of the nature of the materials now being used and of the environments in which they are used.

3. Cost, purchasing, and stock-control people are also happy because of the simplification and consequent cost savings that have resulted.

4. Personnel relations have been further improved because of the recognition that management showed it was both alert and sympathetic to the problems of those responsible for conducting operations properly.

The point of these case histories is not to "tout" one brand or kind of solvent, but rather to emphasize that the major hazards of solvents lie not so much in their own peculiar properties, but in the improper selection and the misuse of them.

Solvents As Tools

Solvents are tools of industry, just as are wrenches, hammers, screw drivers and other implements. They are also just as varied in properties, except of course in physical dimension. It is this one difference that makes our problem complex. Mechanical tools may be distinguished visually as to their instant applicability to a given job. The properties of solvents, however, must be studied and understood before they are applied to a class of work.

How can one know the properties of solvents, that is, get the facts and figures on their flammability and toxicity? Such data is available to anyone in many reference works. All of them, in one form or another, provide tables of physical properties. Most give information on the uses to which each solvent has been put. Many describe the physiological response to exposure, either by contact or by vapor inhalation, and usually suggest both safe levels of concentration for exposure for daily use and maximum tolerance levels for massive exposures.

(Continued on page 43)

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- **What are the safety and maintenance factors of specific paints . . . the importance of the Color Code and where to use red, green, white, orange and even purple . . . who specializes in such paints?**
- **What are the most economical types of materials handling equipment for you?**
- **What is the importance of a uniform code for safety signs and signals . . . where can you find materials which will fit a planned program?**
- **What are the essentials for hand soaps and cleansers to protect the skin . . . the types of protective creams to prevent skin rash?**
- **What are the various types of electrical equipment approved by the Underwriters' Laboratories for specific conditions of hazardous gases, vapors and dusts . . . who makes them?**
- **What are the vapor hazards of flammable liquids . . . what fire prevention containers and equipment will do exactly the right job?**
- **What is the range of protective clothing, such as 70 different types of protective gloves . . . the specific merits and uses of each one—which is the very best for you?**
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FALLS—Duty To Remove Ice and Snow—Arising Out of Employment

An award of compensation was properly denied to an employee who, while on her way to work, slipped on an accumulation of ice and snow on a public sidewalk in front of the main entrance to the employer's factory, fell and sustained injuries. The court held that there was substantial evidence to support the trial court's finding that the employee was on a public sidewalk and thus not on the employer's premises. The court further held that the employer was not negligent in failing to remove the ice and snow in front of the building because there is no absolute duty to keep public sidewalks free from ice and snow especially when it had snowed the night before and was still snowing at the time of the accident. The finding that the accident did not occur on the employer's premises together with the finding that the employer was not negligent in failing to remove the ice and snow led the court to conclude that the accident did not arise out of or in the course of employment. The court also held that two letters, which the employer sent to the employee prior to the bringing of the action offering to help pay the medical expenses, did not constitute an admission of liability. The employer in his letters questioned and indicated doubt as to any liability under the statute for the injuries sustained. Affirmed.

Madison v. Key Work Clothes, Inc.; Kansas Supreme Court. No. 40, 776 Dec. 7, 1957

THIRD-PARTY ACTION—Evidence—Lack of Proof of—Negligence

A judgment was improperly granted against the owner of a hoist in favor of a general contractor's employee who was injured when the hoist car fell from the third floor level to the ground at a construction site, since the court found no actionable negligence on the part of the owner of the hoist. The record showed that a verdict was rendered in favor of the injured employee. The court ruled that the complaint be dismissed as a finding of negligence on the part of the owner of the hoist was founded, at most, only on speculation. In addition, there was no proof that the equipment was defective at the time of delivery, nor was there proof that the owner of the hoist knew or should have known of such defect. The record showed injured employee's employer had exclusive control and maintenance of the hoist. The court further ruled that all of the credible evidence was to the effect that the pawl and the tooth of the ratchet wheel, which was used in the operation, were in good operable condition and not defective.

Beglane v. Carlson Hoisting & Machinery Co., Inc.; New York Supreme Court, Appellate Div., Second Judicial Department. December 9, 1957.

FEDERAL EMPLOYERS' LIABILITY ACT —Safe Place To Work

In an action under the FELA, a railroad cook was properly granted a recovery for injuries sustained by reason of the railroad's failure to provide a safe place to work. The employee sustained his injuries while trying to thaw out a frozen and clogged line which provided the "cook" car with water. The evidence showed that this line had been in a state of disrepair for more than a year and that the water could not be drained in order to avoid freezing in cold weather. The evidence further showed that the railroad did none of the things suggested to repair the line or change it in such a manner that it would be less dangerous to thaw out. The court ruled the evidence was sufficient for the jury to find that the railroad failed to provide the employee with a reasonably safe place to perform his required tasks. The court further ruled that it was not error to compel the railroad to produce a statement made by the injured cook to a railroad representative after the accident because it was within the discretion of the trial court to order the production of the document. Affirmed.

New York Central Railroad Co. v. Carr; United States Court of Appeals, Fourth Circuit. No. 7519. December 31, 1957. Appeal from the United States District Court, Southern District of West Virginia.

Twenty-Eighth —

NEW YORK SAFETY CONVENTION

By plane, train, bus, car and subway, delegates from all parts of the country, and from foreign nations as well, converged on the Hotel Statler in New York City for the 28th Annual Safety Convention and Exposition. For five days, starting April 14th, persons interested in the cause of accident prevention exchanged views and listened to authorities discuss current safety problems in some 65 sessions covering accidents, fire, and disease in industry, on the road, in the home, and at sea. The convention was sponsored by the Greater New York Safety Council, the American Society of Safety Engineers, and several other cooperating agencies.

A variety of accident prevention devices made their debut at the Safety Exposition. Among the new devices was an air sampler, not much bigger than a beer can, to be worn on a workman's belt as he goes about his job in a potentially toxic or explosive atmosphere. The new device, which permits on-the-spot analysis, substitutes a miniature jet engine powered by a can of liquefied gas for the former bulky hand-driven or motor-driven pump.

A new line of ambulance cots, including some that are only 8¼ inches high, recognizes the increased use of private cars, especially station wagons, by civil defense volunteers and by suburbanites in emergency units.

Automotive safety designers have devised for America's new cars, with their increased use of curved glass, a longer windshield wiper having increased arm pressure. They adapted this from research made on aircraft cabins and motorboats. One company showed also a precision instrument that tells when windshield wiper arms lack sufficient pressure to give a clean wipe. This is intended for safety check-ups by truckers and other motor fleet operators and in service stations.

The exposition had 133 booths where safety organizations and manufacturers of safety devices displayed the latest developments in protective clothing, machine guards, vision testing, safety techniques and other aids to accident prevention. Along with new inventions, the industry showed improved models of standard safety equipment.

Protective headgear has come a long way from the early uncom-

fortable helmets of miners and construction workers. A mining specialty firm showed a hard hat, with built-in suspension, from which falling objects literally bounce off without jarring the wearer. Another maker of protective apparel exhibited hard hats for the dressy construction worker. They have broad brims and a satinized finish. The same company displayed pants with aluminized linings, for the well-dressed "cool" fireman.

Safety shoes were shown in a variety of designs, to meet job needs and fashion tastes. Some of this year's new models feature, in addition to protection against heavy pressure, soles of chemical gum to withstand cutting oil and steel chips on shop floors. Spats to protect worker's ankles from molten metal and industrial gloves, thinner than a surgeon's gloves, yet protective against strong corrosives, are among other showings intended to make safety stylish and more comfortable.

Among other accident prevention devices were automatic audiometers for workers and others to test their own hearing, a "guillotine stopper" safety catch for the highly dangerous paper-cutting machine, fibreglass ladders that are stronger than the heavier wooden ladders, and portable flashing caution lights and emergency signals of a type used by the Atomic Energy Commission.

A spray balm for burn treatment that has brought commendations from fire departments in several parts of the country and improved devices for grounding and neutralizing static electricity in hazardous areas of industry were also shown. A mass showing of the latest types of fire extinguishers included a simplified model of the pressurized dry chemical portable. All that is required is to aim the discharge horn at the fire and pull the trigger for instantaneous envelopment of the blaze by a cloud of fire-killing dry chemical.

A wider-than-usual range of first aid kits included new models with plastic windows on each unit to enable easy check-ups for contents. There were improved detergents, protective creams and hand cleansers, as well as dispensing devices, including a clogless device which measures out exactly the needed amount.

A pocket-size respirator, that can be stored in a belt holster, has been developed for continual or emergency use against respiratory hazards. It uses filter cartridges. There are also large but portable air packs for uninterrupted supply of air for long, continuous operation in hazardous atmospheres. One type can be used as the single source of air supply for a six-man work crew. Animated scale models at the exposition showed tank cars and tank trucks at safety loading and unloading platforms. There were also demonstrations of a new type of pump for safe handling of strong etching solutions.

Following are highlights of some of the addresses presented at various conference sessions.

Workers will be more careful to avoid accidents if they are allowed to establish their own safety practices.

"Encouraging people to think creatively about their safety protection is an ideal way to help employees who do not have routine assignments," said Leroy J. McCarty, safety supervisor of the Remington Arms Co., Inc., at Bridgeport, Conn.

"Basically," declared Mr. McCarty, "all people have a latent creative ability. They particularly enjoy working with the finished products resulting from their ideas. Workers prefer going over a job and arriving at their own methods of safety. A competent safety man should always check the results, but for the most part people are competent to arrange their own safety plan."

Mr. McCarty said maintenance men were " an example of an individual who can not work with just good safety habits." He said a maintenance worker "needs the encouragement to think creatively before tackling his assignment."

He declared that "group brainstorming" was also an effective technique "that is very useful in boosting safety morale and is a means to help supervision understand the safety attitude of the group."

The Federal Civil Defense Administration is stockpiling a new mask that gives "excellent protection" against chemical and biological warfare as well as against inhalation of radiological particles. H. H. Fawcett, safety engineer at the General Electric Company's research laboratory at Schenectady, told the convention's chemical session meeting that the new mask was a specific against war gases, including nerve gases, but would not protect against carbon monoxide, ammonia and other common or industrial gases. The mask, designated as CD V-800 for use by civil defense personnel, is designed for use in conjunction with a detection kit which distinguishes between the nerve gases and the mustard gases.

Mr. Fawcett warned against use of any gas masks for any purposes other than the specific use for which they were designed.

"After both World War I and II," he said, "several instances were reported where 'surplus' Army masks were used for protection against gases for which they were not designed, with serious consequences. It is important that gas masks are not misused."

A great many workers don't recognize an accident when it happens to them. For instance, strained muscles, slipped discs, spinal fusions and hernias often occur as a result of wrong bodily movements or posture while working, declared James W. Shirreffs, director of the American Institute of Human Kinetics.

"Muscle strains, hernias and many of the neuralgia and neuritis pains are just as preventable as the accident which occurs as a result of a bolt lying on the floor," said Mr. Shirreffs. "A common cause of injury in experienced workers is 'cumulative strain' which usually arises from wrong methods of working. This type of strain accounted for 30 percent of the back cases in a recent Bellevue survey."

Mr. Shirreffs said industrial management could bring about maximum work efficiency with a minimum of muscular effort by making studies and instructing workers in better bodily movement. He described human kinetics as the study of how mechanical, nervous and emotional factors influence the human body.

Mr. Shirreffs said that although safety engineers had reduced lost-time accidents in industry in the last 15 years, plant hospitals and general hospitals were "still overcrowded" with the victims of unnecessary physical strains.

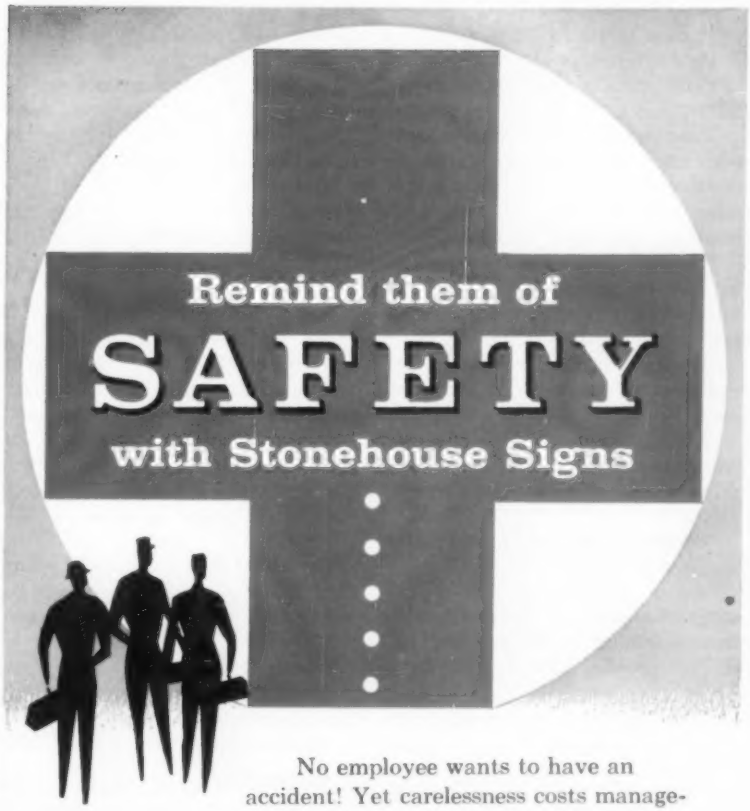
The standard methods for accident prevention have gone about as far as they can "but can no longer bring about further decreases" in the national accident rate, the annual convention was told. A safety expert said any further decrease must come through new accident-prevention techniques based on the realization that many people have accidents because subconsciously they want to have accidents.

Paul M. Colson, assistant division manager of the Liberty Mutual Insurance Company's Loss Prevention Department, addressed a session on "Why Do They Do It?" in the Statler Hotel. He said accident prevention techniques had been most effective up to now in the 15 percent of accidents that "are produced by objective physical causes" but that improved methods must be found of dealing with the 85 percent which "stem from purely personal, subjective causes."

"Many people mature unevenly," he declared, "so that emotional conflicts are not resolved adequately. Feelings of guilt, inadequacy and worthlessness develop, grow and produce tensions that must be dissipated. Accidents form one type of defense against such guilt feelings. They enable some people suffering from feelings of neglect to attract attention. They allow many to expiate their sense of guilt through pain or the other unhappy results of accidents.

"Accidents in many cases can be said to be the unfortunate—and unsatisfactory—solutions to seemingly insoluble emotional problems. Many motivations are not recognizable because the original motivation has been submerged and a substitute or derived motivation has been acted upon."

Mr. Colson said that employers "can do much to help these people" but that much remained to be done by safety engineers "to learn how to apply the techniques of



No employee wants to have an accident! Yet carelessness costs management and labor thousands of days of production and millions of dollars each year. Frequent reminders—particularly in places where accidents can easily happen—keep employees alert to danger and cut costly accidents. These reminders, made often and inexpensively by bright, easy-to-read signs, are an important step in an effective safety program for your company.

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depth psychology to management of human relations."

Some of the positive steps that can be taken were outlined as follows:

"Employment of medical people who have skills and orientation in depth psychology to guide management and supervision in its human relations activities.

"Careful placement of workers in jobs for which they are fitted intellectually and emotionally as well as physically.

"Provision of proper training that enables the worker to adjust to his job.

"Maintenance of satisfactory work conditions so that employees do not build up unconscious resentments.

"Operation of a truly preventive medical program.

"Assist employees who show signs of emotional stress to solve their personal on-the-job and off-the-job problems."

Since their commercial introduction to civilian use some 10 years ago, Nylon ropes have found many marine and industrial applications because of their superior performance, long life and economy, according to Earl L. Wilson, Sales Promotion Manager, Columbian Rope Company, Auburn, N. Y.

The recent introduction of Dacron polyester fibre to cordage applications has shown that "this fibre has a definite place in a number of rope uses," he said.

Mr. Wilson asserted that as Nylon and Dacron fibres don't get wet, these fibres do not swell or become distorted, they remain easy to handle. They are not weakened by rot, mildew, marine growth, or prolonged exposure to sea water, and have high electrical resistance with a dielectric strength of 500 volts/mill.

He added that a new truly effective lineman's rope which can be used with greater safety in wet weather has been developed.

The safety director of a construction company declared that construction workers employed by contractors have, in general, "little regard for safety and little training in it," according to Joseph A. Culkin, safety director of the Catalytic Construction Company. Exempting his own company from the generalization, Mr. Culkin explained the safety problem that faced it when, in the fall of 1956, it became the first outside contractor to take over complete maintenance management of an oil refinery—the Tidewater Oil Company plant at Delaware City, Del. Most oil companies do their own refinery maintenance.

Declaring that "most refineries have safety records which make most construction companies look like demons," Mr. Culkin went on to say:

"The consensus among refinery safety engineers is that contractors put little emphasis on safety. They tell you construction employees have little regard for safety and have little training in it. To most of these accusations, I am sorry to say, I have to agree when speaking of construction contrac-

(Continued on page 49)

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NEW FIBRE GLASS COATING SOLVES ALL ROOF PROBLEMS!

A new fibre glass roof coating that has absolutely no cold flow up to 140°F is available from The Garland Co., Cleveland 5, Ohio.

Known as Fibre Glass Supercote, it contains millions of glass fibres that prevent movement of the asphalt cover and sagging or pulling away from high spots in temperatures up to 140°F. Because flow is prevented, oxidation of more than the thin top layer is stopped. This eliminates the major cause of roof leaks—evaporation of underlying asphaltic oils.

In addition to fibre glass, new Supercote is formulated with special plasticizers and waterproofing oils. These penetrate and resaturate dried out roofing felts, keep coating from becoming brittle and provide a positive bond to old roof surfaces. Addition of long fibre asbestos further increases wear and weather resistance.

Fibre Glass Supercote can be easily applied with roofing brush or squeegee over felt, composition, tin and corrugated iron, concrete and built-up roofs. It also is suitable as a final protective coating around sidewalls, chimneys, parapets, skylights and firewalls. Available in 5-gallon pails, 30 and 55-gallon drums.

For additional information, request bulletin A525, The Garland Co., 3748 E. 91 Street, Cleveland 5, Ohio.

(For details, use Key # R-10 on card on page 1)

industrial hygiene

Air Pollution Course

Student candidates for a new course in air pollution control at the Graduate School of Public Health of the University of Pittsburgh are now being considered for admission to the 1958–59 academic program. The course leading to the degree of Master of Science in Hygiene is open tc engineers and others with the bachelor's degree in the physical sciences having a mathematical background.

The nine-month long course, placing emphasis on methods of appraisal and on engineering control of air pollution, has been under development during the past year by a team composed of Wesley C. Hemeon, Director, Hemeon Associates, Air Pollution Research Engineers; Lee Schreibeis, Chief, Division of Air Pollution Control, Allegheny County Health Department; and M. A. Shapiro, Associate Professor of Sanitary Engineering, Graduate School of Public Health, University of Pittsburgh. They will be supplemented by specialist visiting lecturers in certain phases of the instruction.

In addition to a number of important background courses already in operation in the School, three special courses in air pollution have been designed as a core of instruction in this field. One of these courses is offered during the first semester and the other two during the second semester.

Air Pollution Principles: A lecture course concerned with all aspects of the subject and solution of engineering problems related to air pollution control.

Air Pollution Measurements: A lecture and laboratory course aimed to instruct and provide practice both in outdoor air measurements and in stack gas and other source measurements—for the determination of particulate matter, significant gases and odors.

Air Pollution Practice: Field and laboratory practice in methods for and design of air pollution investigations, both at the source and in the community. It will also include studies of the characteristics of various types of gas cleaning equipment. Particular attention will be given to the combustion of fuels and incineration of wastes.

Graduates of this course of training are expected to have acquired basic abilities for independent operation and administration of air pollution activities for industry and for governmental agencies.

Inquiries should be directed to M. A. Shapiro, Associate Professor of Sanitary Engineering, Graduate School of Public Health, University of Pittsburgh, Pittsburgh 13, Pa.

Radiation Safety

An indication that radiation protection problems can be effectively solved is found in General Electric's record of no radiation injuries in 11 years of operating large atomic plants, a company executive said recently.

Royce O. Schermerhorn, manager of employee and community relations for the Aircraft Nuclear Propulsion Department (ANPD), at Cincinnati, Ohio, spoke before the Ohio State Industrial Safety Conference in Columbus. He said that General Electric now employs more than 14,000 people in four atomic departments located across the country.

Throughout the entire national effort to harness the atom for both peacetime and defense purposes, Schermerhorn reported, and over the entire industry there have been only two radiation deaths in 2.5 billion man-hours worked under potential radiation exposure. He termed this "a record unequaled in any other safety program."

"By way of comparison," he said, "the death rate in average American industry in 1955 was 300 deaths per 2.5 billion man-hours."

At General Electric, he said, safety always has taken priority over other considerations in operations involving radiation. The company has taken all steps possible to provide adequate worker protection at all atomic sites, he reported.

Recently, he said, the AEC presented its highest Award of Honor for Industrial Safety to ANPD "in recognition of 11,175,509 man-hours worked without a disabling injury to any employee. This safety record

(Continued on page 39)

why a health education

As a preface, it should perhaps be stated that most of the statistics and experiences that follow will relate to cancer, since the combating of the ravages of that dread disease is one of my chief concerns as director of the North Carolina Division of the American Cancer Society. However, in general, what is said here of cancer is probably also true—only to a greater degree—of heart disease, which is the "Number One Killer" of people in this country today.

At the present rate of incidence, cancer will take the lives of over a million skilled and semi-skilled workers in the next seven years in this country. This combined with heart and circulatory diseases, will take the lives of somewhere between three and four million workers in these same categories unless we start doing something about it NOW.

We know that education has improved the experience of industry in the case of deaths and disabilities from injuries. As a matter of fact, this is the basis for industrial and public accident prevention programs. Likewise, proper education of workers regarding so-called dread diseases definitely shows an improvement in our experience with deaths from these causes. We know, for instance, that 50 percent of all deaths caused by cancer can be avoided if the victims are properly educated to recognize the early symptoms and to present themselves to their doctors for early diagnosis and treatment. If the same general percentage of cure through education holds true for heart and circulatory diseases, it would be possible to save the lives of 1½ to 2 million industrial workers between now and 1965, at which time it is felt that American industry will start feeling a real pinch due to shortages of available workers in these categories. Also, one of the largest life insurance companies in America uses defensive education in a series of national advertisements concerning heart and circulatory diseases. After all, these people would not spend large sums of money on this program if they did not believe it produces public service and economic results.

In the Charlotte, N. C., area there is an outstanding cytology program under way carried on by Dr. Kimmelstiel and his associates through which 40,000 women were examined last year for internal malignancies. As a result of these examinations, 150 to 175 early and curable cancers were uncovered. Unfortunately, about 200 incurable cancers in the late stages were also uncovered. This is a good example of what defensive education can do and is doing in one small area and the results which can be obtained through early detection and treatment of a dread disease.

Incidentally, this problem poses not only a moral obligation for industry but a financial obligation as well. For instance, deaths and disabilities resulting from heart and circulatory diseases, when they occur on the job, have been declared compensable by Industrial Commissions in many cases.

At the Halifax Paper Co., about one-third of the safety education is channeled toward health education. Every worker attends monthly an hour-long safety meeting:

Three of the safety meetings are built around educational programs for the prevention and cure of cancer, heart disease, and polio.

Another concentrates on the American Red Cross first aid training program.

One concentrates on off-the-job safety.

On a non-regular basis, programs have been included on tuberculosis and the common cold.

The remainder of the programs concern in-plant safety.

The indirect returns from this health education emphasis are: improvement of morale, lowered accident costs, increased production efficiency.

One Company's Experience

About four years ago, the disabling injury frequency rate of the paper industry in the United States stood at about 11.5 per million man hours. The frequency rate at my company was approximately 38, or over three times as high. We decided to do something about this situation. As a result, we revised completely

program?

by **H. WATKINS ELLERSON, Jr.**
General Superintendent
Halifax Paper Co., Inc.
Roanoke Rapids, N. C.

our safety programs, getting away from the Safety Committee form of control and went to complete employee coverage through a system of "Crew Safety Programs" by which every employee was exposed to safety training as carried on through the operating supervisors with the assistance of the personnel department. At the end of a year, our frequency rate was about 17½ as compared to 9½ for the industry as a whole. In explanation of this sharp drop, it might be pointed out that we stepped up radically physical improvements to plant safety such as additional safety guards, handrails, steps, walkways, etc., and emphasized the issuing and wearing of protective personal items in certain areas of high exposure. At this time, we re-evaluated our safety program and broadened its coverage to include off-the-job accidents such as home accidents, automobile accidents, hunting and vacation accidents just prior to the beginning of these seasons, etc. At the end of two years, the industry frequency rate was approximately 9 and ours had come down to 12¾.

Just about that time, we lost four highly skilled employees—one of whom was a foreman—within three or four months of each other; two as a result of cancer, and two as a result of heart disease. With these losses strongly in mind, we took another hard look at the total situation and came to the conclusion that the basic objective of any safety program was **to keep the man on the job.** Certainly an employee is just as lost to his job and his company when he is disabled or dies from cancer as he is if he falls off a scaffold at the mill and suffers total disability or death as a result. This conclusion led us to believe that general health education should be included as a part of our over-all safety program and was more than justified.

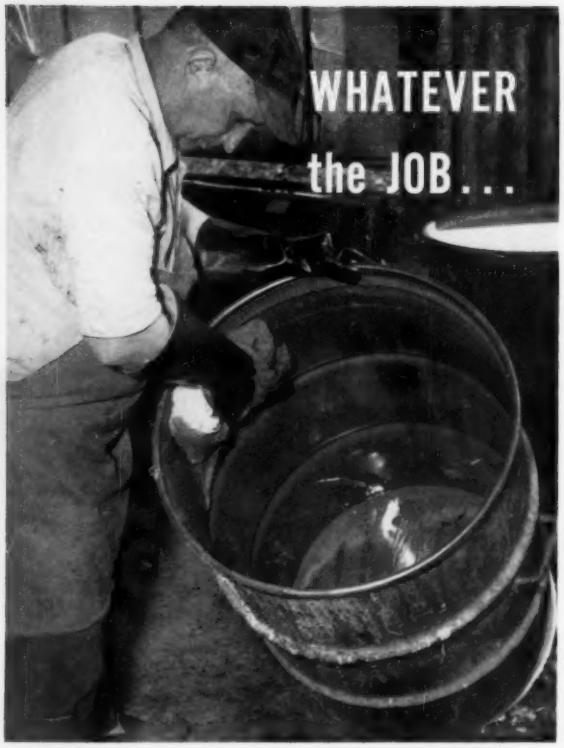
Since the safety programs were already well established and accepted by the employees and the company, we decided that we could include health education as an integral part without additional time or cost to the employees or the company, especially if the health education programs were tailor-made to fit into the already established pattern of safety programs.

Incidentally, we pay our employees for attending safety meetings and, from the results obtained, we are convinced that not only is the cost justified, but it is

Health education in a plant safety program will not only reduce absenteeism and permanent loss of skilled personnel, but also improve the worker's attitude toward the in-plant safety program.

the only way to accomplish productive attendance and interest. We know that a large part of the cost involved has been returned to the company through its improved experience with our insurance carrier. Also, in the case of the four men mentioned above, the personnel department estimated that their replacement cost the company in the neighborhood of 5 to 6 thousand dollars, which estimate does not, I am sure, include all of the so-called hidden costs. Since our average hourly rate is $2.13 per hour amongst our hourly-paid employees, the loss of these four men would have paid for something over 2,500 man hours of attendance at safety meetings. This figure is approximately ⅓ of the number of hours paid each year for this purpose. Furthermore, if health education had been included back then, we would also probably have two of these four men still on our payroll.

Beginning in 1956, we incorporated into our April safety meetings a program on the forms of cancer, early symptoms, cures and present cure-rates. The next year we included a basic program on heart and circulatory diseases. This year we have already in-



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cluded, in our regular safety programs, sessions on T.B., polio, and heart; and, again we are scheduling a program on cancer.

Where a company has a Medical Department separate from the personnel or safety department, it might be more appropriate to allow the personnel in the medical department to direct the health education programs. But inclusion of health education in the regular established safety program will cause the least amount of confusion and upheaval to both company and employees, and this method of getting health education across to the employees should certainly be considered regardless of organizational structure of the company.

Expert Help

In tailoring health education programs to fit the individual needs of the company and its employees, there are available—through local County Cancer Units and Heart and Polio Units—suggested programs, speakers, visual aids, and a wealth of other educational material which can be had for the asking. They can be put together by the volunteer and paid workers in these units to fit exactly what you or your company may wish to have. These paid and volunteer workers, especially those in the Cancer Units, are most eager to cooperate in this health education effort and will set up the programs so as to conflict to a minimum with the total operations of a company. As an example, we have run cancer education programs at the Halifax Paper Company as early as 6:00 A.M. and as late as midnight. We have scheduled these programs for as few as eight people and for as many as a hundred or more. In other words, tailoring programs to fit your company's individual situation is no great problem for your health agencies.

One other step we have taken in cancer education at our company is to extend this education to the wives and other appropriate dependents of our employees. This was started last year and, though the response was not conclusive, it was certainly encouraging and we plan to continue it. We rented an auditorium in town to overcome any reluctance the employees' wives may have had to attend meetings on company property, and we extended the invitation to include "a neighbor or friend." This was done at no cost to the company; but, since it was done as a result of the regular health education programs for the employees, the company got most of the credit and the results of these meetings proved to be an aid in the company's community relations.

To sum up, we are convinced that health education is a necessary and justified part of our employees' total training and education. From our experience, we believe that health education can be more economically included in the regular established safety programs. We believe that health education can be economically as well as morally justified as a part of a company's normal obligations to its employees. And last, but not least, we believe that inclusion of health education in over-all employee training and education aids in community relations, especially when wives and dependents are included as a further step. In-

(Continued on page 39)

Conductivity is checked by an ohm meter. Neoprene binds conductive particles into flooring matrix, assuring lasting results.

Conductive flooring reduces spark hazards in operating rooms where flammable anaesthetic gases are being handled regularly.

Conductive Flooring for Hospitals

Almost everyone has had the experience of walking across a room, touching a metal object, and being "shocked" by an electric spark. This occurs because the person walking on the ordinary non-conductive floor builds up an excess of electrical energy (due to the friction of his shoes against the floor) which discharges itself in a spark of "static" electricity. In the home this is just an annoyance—but in a hospital operating room static electric sparks have caused disastrous explosions of anaesthetic gases. This danger is present during nearly every operation, since most anaesthetic gases, when mixed with oxygen, are violently explosive.

Foot traffic is not the only producer of static electricity in hospital operating rooms. For example, a static charge can be built up by the normal motion of persons wearing certain types of clothing, by the movement of the anaesthesia machine, even by stripping sheets off the operating table. These static sources pose a real explosion hazard. In fact, a U. S. Government report has stated that "there is probably no combination of personnel and equipment anywhere more liable to produce casual, dangerous charges of static electricity than that found at present in the anaesthetizing areas of most hospitals."

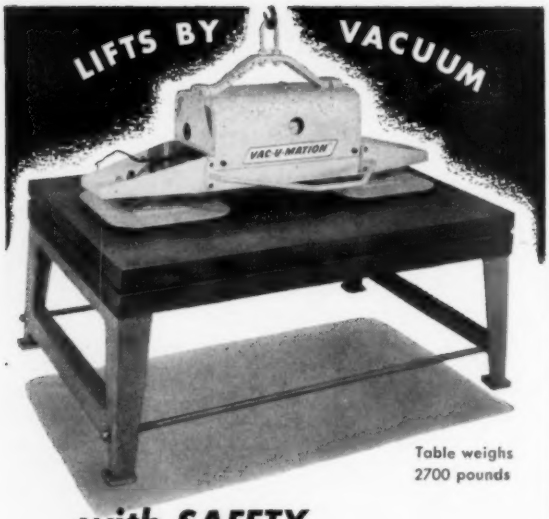
It has long been recognized that the only way to prevent static electric sparks is to electrically "tie" every possible static charge producer together so as to make impossible the generation of different electrical potentials. To do this, hospitals run grounding strips from metal fixtures and equipment to a "conductive" floor which acts as a common ground and equalizes electrostatic potential throughout the operating room.

In addition, a conductive floor makes it impossible for a person to develop an electrical charge by walking on it since the floor's conductivity dissipates the person's electrical potential as fast as he gathers it. Although it is certainly obvious that the conductive floor is the heart of a static-free area, a great deal of confusion existed for many years as to just what degree of conductivity the floor should have. It has now been determined that the proper range of electrical resistance should be between 25,000 ohms and 1,000,000 ohms, measured between electrodes three feet apart. Resistance much higher than 1,000,000 ohms means a floor which, for every practical purpose, is non-conductive. It will neither act as a ground for metal equipment nor prevent a person walking on it from accumulating enough static electricity to cause a spark. And a floor with less resistance than 25,000 ohms is too conductive. Persons using it are subject to severe electrical shock from faulty electrical equipment—much as a person who touches an electrical connection while standing on a wet floor.

Types of Conductive Floorings

During the last ten years a wide variety of conductive floors have been marketed. Most have proved unsuccessful.

The principal causes of conductive flooring failure have been loss of conductivity or loss of adhesion to the sub-floor. Adhesion is a property that varies with the flooring composition, but the conductive element used in virtually all these floors is acetylene carbon black. This material has the property of refusing to combine permanently with many cementitious



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WORRY WON'T CURE CANCER

If cancer is detected in its early, localized stage, the chances for cure are very much better. Play it safe and smart. See your doctor for a checkup every year.

And fight cancer with a check!

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AMERICAN CANCER SOCIETY

materials. The result is eventual "washing out" of the conductive carbon. In addition to loss of conductivity or adhesion, many conductive floors have failed because they could not meet the stringent service requirements imposed by hospital operating room conditions.

The ideal operating room floor must combine the resilience, light weight and thinness found in resilient floor coverings with the durability, permanent adhesion, waterproofness under frequent flooding conditions, and seamless qualities found in the best hard surface floorings—but, above all, it must be permanently conductive and sanitary. A tall order for any floor covering.

Conductive Neoprene

A neoprene flooring compound is being marketed which provides a combination of the desirable qualities of both hard surface and resilient floor coverings. The manufacturer has found that the addition of neoprene to a precise, factory-controlled formulation of dehydrating powders and acetylene carbon black gives a conductive floor covering which offers virtually every quality desired in an operating suite. A marble aggregate is added to provide an attractive terrazzo effect.

This neoprene terrazzo material is trowel-applied and then ground to a smooth, jointless finish. The neoprene content acts as an adhesive which holds the floor covering to the subfloor with a permanent bond. It also serves the function of a permanent, flexible binder; the conductive carbon particles will not track out or wash out.

No Danger of Cracking

These qualities of flexibility and adhesion enable the neoprene composition floor to be put down as thin as ⅜-in. with no danger from cracking or loss of bond. The permanency and performance of this neoprene terrazzo under the most difficult conditions has been demonstrated in the U. S. Navy. Since 1948 this material, in its non-conductive form, has been used aboard hundreds of naval vessels as a waterproof deck covering in showers, toilet areas and other wet spaces.

Seamless Construction Promotes Sanitation

Neoprene conductive floors are installed without joints, dividing strips, or seams in which blood or germ-laden solutions may collect. This is an important sanitary feature since, in a hospital, all contaminated matter must be removed from the floor. Neoprene floors are slip-resistant, too, and their resilience underfoot is a comfort to doctors during long operations.

Finally, neoprene has the quality of offering a chemical affinity to the acetylene carbon black conductive element in these floors. This means that the carbon is locked in and the floor's permanent conductivity assured.

By courtesy of Elastomer Chemical Dept., E. I. duPont de Nemours & Co.

Radiation Safety

(from page 35)

extending over a period of more than four years is believed to be unequaled in the entire nuclear industry."

Actually ANPD worked over 16 million man-hours before experiencing a disabling injury to an employee. This injury was a typical minor industrial accident not involving any type of atomic energy material.

Intervals free from injury of any kind of more than five million hours have been achieved at Hanford, he said. In 1954, a total of 9,437,211 man-hours were completed there without a single disabling injury of any kind.

"These records were set despite the fact that radioactive materials processed at Hanford equal in radiation that which would be emitted by tons of radium," he stated.

At the Knolls laboratory in Schenectady, N. Y., where more than 2,000 persons are employed, Schermerhorn reported that no person ever has been injured by radiation despite operation of a number of nuclear reactors for about 10 years.

Looking to the future, Schermerhorn said that continued vigilance in radiation protection is vital to progress in the atomic industry.

"Education of employees and community on radiation safety must be meticulously carried out, but need not stifle the growth of this new industry," he declared.

He urged industry to aid in formation of codes for control of industrial radiation exposure, pointing out that industry must help make such codes uniform and adequate.

"Radiation safety on a production line basis is a new and rapidly changing science," he said. "Routine protection for large numbers of personnel must be available for a satisfactory growth in the use of atomic energy. The philosophy of management toward radiation safety is therefore critical, both for current needs and for the development of a sound, intelligent future."

Why a Health Education Program?

(from page 36)

cidentally, last year the paper industry's injury frequency rate was in the neighborhood of 9 per million man hours worked; Halifax Paper Company's was 6½ per million man hours.

Everyone should bear this thought in mind—during the past 20 minutes, at least ten people have died from cancer and twenty-five or thirty from heart disease. Something can be done about this situation, and there is no more productive an area in which to work than with industrial employee groups. I am convinced that astounding results can be obtained with very little effort. And, remember, this not only is good sense, it's good business!

From an address presented at a meeting of the Charlotte Area Personnel Managers' Association.

Accidents cost more than

ALCOA ABRASIVE TREAD PLATE

An employee slips on a greasy floor and twists his knee. A severe, chronic inflammatory condition results. Medical costs and Workmen's Compensation total $10,553.77. The employer's accident rate is up. Production time is lost while a new man is trained.

This is just one of 20,000 avoidable slipping accidents in industry every year. Alcoa® Aluminum Abrasive Tread Plate with lasting slip-proof qualities prevents such accidents. Tough particles of fused aluminum oxide in its abrasive surface stay slip-proof even when wet, oily or greasy. It is the only nonskid floor surface that gives you the advantages of corrosion resistance and light weight.

Learn how you can eliminate hazardous conditions on floors, stairs, ramps and other areas. Check the coupon below; write Aluminum Company of America, or call your nearest Alcoa distributor.

Make Your Own 30-Second Safety Test . . . Check the Coupon for FREE Sample of Alcoa Aluminum Abrasive Tread Plate.

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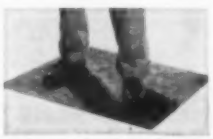

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I'd like to see how Alcoa Abrasive Tread Plate prevents slipping. Please send me FREE sample—also application, design and fabricating data.

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Company_____
Address_____
City and State_____

(For details, use Key # R-14 on card on page 1)

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As specialists in Accident Prevention, we can provide your plant with the protection it needs at a price you can afford. Guard against accidents and the losses they bring by using Safety Signs by LIFE SAVER. Low in cost, these Safety Signs alert the workers and help protect them from accidents. Colorful and easy to read—these durable Steel Signs have Stock Worded slogans to protect plants and workers against the hazards of FIRE, CHEMICALS, TRAFFIC, SANITATION and BODILY INJURY.

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(Use Key # R-29 on Inquiry Card on page 1)

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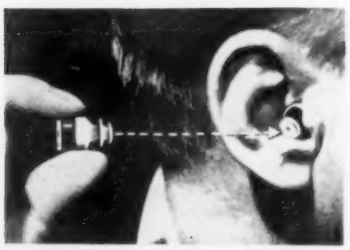
Eliminate the HARMFUL Effects of NOISE to The EAR DRUMS . . .



A FREE 30 Second Demonstration will PROVE this BEYOND QUESTION We GUARANTEE THAT! Remember they are NOT EAR PLUGS! They are scientifically developed sound controls that protect the ear drums without interfering with normal conversation or sound. We'll gladly send you a pair for actual demonstration. THEN you will find out why they are recommended and used wherever NOISE is a HAZARD and a deterrent to normal production. Send for your demonstration pair TODAY on company letterhead. No obligation to purchase.

SIGMA ENGINEERING COMPANY
1491 Vine St., Dept. F-2, Los Angeles 28, Cal.
(Use Key # R-30 on Inquiry Card on page 1)

Employees of the Bridgeville plant of the Plastics and Resins Division, American Cyanamid Company, were honored recently when they were presented the Cyanamid Safety Award, earned for having worked more than 2,400,000 injury-free man hours in the past two years. The ceremony, witnessed by employees and guests of the plant, marked the fourth time that the Bridgeville plant had earned a company safety award.

During 1957, Cyanamid's more than 29,000 employees achieved the most significant safety record in the 50-year history of the company. The record established by the more than 40 plants and laboratories of the company totalled a frequency of less than one disabling injury per million man-hours worked.

• • •

The F. C. Russell Company of Columbiana, Ohio, has received a safety award from the Industrial Commission of Ohio, according to Michael Schuller, Chairman of the Columbiana County Industrial Safety Committee. The award was given for working 588,494 hours from January 1, 1956 to September 1, 1957 without a lost time accident.

• • •

The Industrial Safety Yearbook, issued by the Fibre Box Association shows a 12% reduction in accident frequency among manufacturers of corrugated and solid fibre shipping containers in 1957.

During the four years the Association's Safety Program has been in effect accident frequencies have declined 22%. Improved safety records are expected during 1958.

The Association's Safety Program has been accelerated to help reduce accident rates. It includes Quarterly Statistics on Accident Rates, Safety Posters distributed monthly to the membership and Regional Safety Seminars, featuring discussions by Safety Officials.

• • •

Both the Dayton (O.) and York (Pa.) plants of The Standard Register Company were first place winners in the National Safety Council's Printing and Publishing Safety Contest for 1957, according to Kenneth P. Morse, Executive Vice President and General Manager for the business forms company.

Standard's main plant in Dayton won its first place award in the Group A category for firms working more than 100,000 man hours a month. The York plant garnered top honors in the Group B category for firms working less than 100,000 man hours a month.

In compiling their winning records, Dayton set an accident frequency rate of 1.65 for 1,000,000 man hours, working a total of 3,641,142 man hours during 1957; York had no accidents for 462,493 man hours worked in the same time period.

The York plant won an additional honor in the form of a "Certificate of Commendation," for working 608,301 man hours, from August, 1956, through December 31, 1957, without having an accident that resulted in time off the job.

• • •

The highest safety award of B. F. Goodrich Chemical Company —the President's Cup—has been awarded to the company's Avon

Lake, Ohio, general chemicals plant. The award is given each year to the plant with the lowest injury frequency rate among the seven plants of the chemical company.

John R. Hoover, BFG Chemical president, presented the cup in recent ceremonies at the plant. Perry Hayes, a chemical operator, received the award for the plant. Hoover said that the record of the general chemicals plant has been particularly commendable because of several large expansions which have taken place there with the consequent addition of new processes and new operating personnel.

This is the second time the Avon Lake general chemicals plant has won the award. Last year the cup was won by the development center at the Avon Lake location.

• • •

The Northern Region of the Pennsylvania Railroad, with headquarters in Buffalo, won top place among the road's nine regions in the annual "President's Safety Contest" for 1957, with a record of 8.49 employee injuries per million manhours. This figure includes all injuries causing any disability on any day following the accident.

The railroad's Buckeye Region, with headquarters in Cincinnati, led all regions in improvement of safety over 1956 by showing a 43.5 percent reduction in injuries.

The Philadelphia Region placed first among the Pennsylvania's larger regions, designated as Group A in the contest, having the lowest employee injury rate in this group, with 21.4 percent fewer injuries than in 1956.

In announcing these regional "all-department" results, the Pennsylvania also named regional winners for departmental safety achievement.

On this basis, the Philadelphia Region led the larger regions (Group A) with the lowest numbers of injuries in the maintenance of equipment department, station department, and train and engine service department, and among engine and train service employees in yards. In all of these, except the station department, the Philadelphia Region also showed the great-

Each of these 7 Edmont lines is job-fitted to Cut Costs

Neox No. 924 . . . 8 styles

NEW "FLEXIBLE NEOPRENE" COATED GLOVE: Edmont's popular reinforced neoprene (Neox) is now as flexible as plastic. Gives maximum protection for all-around use. Especially resistant to cutting, snagging, oil, acids and solvents. All gloves are of uniform quality, due to Edmont laboratory control of compound.

Grab-It No. 62W . . . 11 styles

POSITIVE NON-SLIP GRIP, WET OR DRY, makes the Edmont Grab-It, with rough-textured natural rubber coating, the safest general handling glove on the market. Now made in curved-finger, wing-thumb pattern which gives a perfect fit.

Werx No. 151 . . . 2 styles

OUTWEARS CANVAS 4 TO 1, and costs far less than goatskin. Edmont's Werx glove is ideal for dry materials handling. Special plastic-impregnated material is very comfortable and has an excellent grip, is lint-free, moisture repellent, washable.

Monkey-Grip No. 31 . . . 13 styles

JOB-FITTED FOR ABRASIVE WORK: Edmont-compounded vinyl coating on Monkey Grip gloves insures uniform long wear. Frequently outwears leather. Exclusive pattern, with seamless palm, wing-thumb and curved, preflexed fingers, fits every part of the hand. Also available in triple-thick palm styles for extra protection and wear.

Redmont No. 938 . . . 6 styles

FOR HEAVY DUTY LIQUID-PROOF HANDLING: Redmont gloves have a 30% thicker coating of red Neox (reinforced neoprene) with a special cured-in, safety-grip finish. Recommended for maximum protection and long wear under severe conditions. Wing thumb, seamless palm, curved fingers.

Grappler No. 363 . . . 5 styles

HEAVY DUTY DUROX COATING, on Edmont Grappler gloves, has exceptional wet-grip characteristics. The exclusive reinforced plastic coating outwears ordinary plastic up to 50%. Wing-thumb, curved finger pattern provides maximum comfort.

Snorkel No. 404 . . . 3 styles

SUPER-FLEXIBLE LIQUID-PROOF GLOVE: Edmont Snorkel combines almost bare hand freedom with excellent protection. Abrasion-resistant plastic coating has special finish that gives outstanding wet or dry grip. Two-piece jersey lining has wing-thumb, curved pre-flexed fingers.

FREE TEST OFFER TO LISTED FIRMS: Tell us your operation, materials handled and temperature condition. We will recommend glove and coating that best fit job and supply samples for on-the-job testing.

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(For details, use Key # R-16 on card on page 1)

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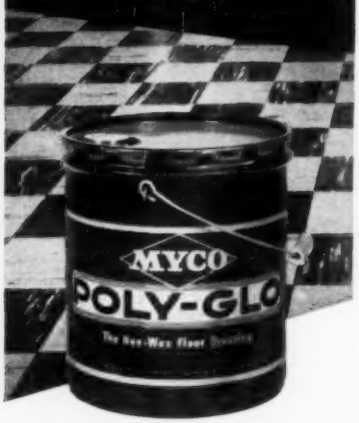

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the toughest, brightest finish for your floors

One coat of POLY-GLO outlasts two coats of conventional floor dressings, making it possible to cut floor maintenance time up to 50%. POLY-GLO resists scuffing, heel marking and water spotting, will not yellow. Easy to apply, dries in minutes to a high luster, and removes easily with a neutral cleaner when floors are stripped.

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SM-68

(Use Key # R-17 on Inquiry Card on page 11)

est Group A safety improvement over 1956.

The Chesapeake Region, centered in Baltimore, scored for Group A with the greatest safety improvement in the station department and the lowest number of injuries in the maintenance of way department. The Pittsburgh Region was credited with the greatest safety improvement among the larger regions in the maintenance of way department.

Among the smaller regions (Group B), the Northern Region had the lowest numbers of employee injuries in the maintenance of way, maintenance of equipment, and train and engine service departments, and the Buckeye Region scored the greatest improvement over 1956 in the same departments. For engine and train service employees in yards, the Northern Region also had the lowest injury rate for the year, but the Southwestern Region, with headquarters in Indianapolis, showed the greatest improvement. In the station department, the Southwestern Region showed the lowest rate and the Northern Region the greatest improvement.

• • •

Twenty-seven plants and other locations in American Can Company's Canco division have been cited by the Can Manufacturers Institute for completing 1957 without a disabling injury accident, Elgin D. Sallee, Canco manager of safety and industrial hygiene, has reported.

The recognition included safety award plaques to 13 container plants "for outstanding achievement in accident prevention" during the year and certificates of merit for "exceptional performance in accident prevention" to 14 smaller locations.

Plant locations awarded plaques are Fort Smith, Ark.; Chicago, Ill.; Denver, Col.; Salem, Ore.; San Diego, Calif.; Wilmington, Calif.; Arlington, Tex.; Hoboken, N. J.; Terra Haute, Ind.; Portland, Me.; Maywood, Ill., and Kauai and Kahului, Hawaii.

In addition, Canco's plant in Kansas City, Mo., and machine shop at Geneva, N. Y., received plaques in their respective CMI divisions for making the greatest improvement in safety records during the year, Mr. Sallee said.

• • •

Sylvania Electric Products, Inc. has awarded its President's Award for Safety to the company's Radio Tube Operations, which has headquarters in Emporium, Pa. A trophy was presented by Sylvania President Don G. Mitchell to the Radio Tube Operations department for the best safety performance during 1957 of any of the company's nine product divisions. Basic national standards were used to determine the winner, with emphasis on improvement in safety over previous years. Radio Tube becomes permanent possessor of the trophy, having also won it for the two previous years.

A New Look At Accident Causes

Safety representatives in the Kentucky area were treated to a new look at accidents at the Kentuckiana Safety Congress and Exhibit in Louisville on May 20. The Congress, sponsored by the Louisville Chapter of the American Society of Safety Engineers, heard an address on "Daydreams, Dangers and Disabilities" by Harry Armand, Editor of SAFEY MAINTENANCE.

Mr. Armand stressed the fact that "Accidents are not problems—instead, they are the consequence of problems, problems born of daydreams, low morale, improper work procedures, inadequate supervision, lack of safety equipment or management's disinterest." In shifting the connotations of the word, "accident," from a fatalistic focus to human terms, the speaker redefined the accident concept to emphasize human failure.

Daydreams, according to Mr. Armand, account in large measure for this human failure. In daydreaming, workers achieve those goals which reality has seemingly denied them: job satisfaction, recognition, etc. It was further shown that accidents are not really caused

by carelessness. Everyone cares to live and in some measure to achieve life's rewards. The point at issue becomes just where or in what direction this care is to be resolved —in attention to the job with its demands and hazards, or in the vague world of daydreams.

The speaker continued that the effective way to overcome daydreaming on the job is to remove the causes "by proper job selection, a word of encouragement, stressing that the lowliest man on the team is vital to the success of the entire team, by catering—as we must —to the need for recognition inborn in us all."

"Accident prevention effort will only eliminate disabling daydreams in direct ratio to the appeal of safety which must be dramatized to a greater degree," the speaker stated.

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DUSTY?
YOU NEED . . .
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(For details, use Key # R-18 on card on page 11

Modern Solvents

(from page 25)

What these works do not and can not tell you is how to apply the information they contain. All too often we find the well-intentioned, but nonetheless mistaken, desire to approach a problem with a beautifully conceived and executed set of materials standards in hand. It is so easy to do! The materials specifications are all drawn up and we have only to post them on the bulletin board or place them in the standard practice manual . . . and thereafter all will run smoothly! We wonder!

Even with so widely used tools as automobiles, excellent mechanics may painstakingly read the repair manual that makes the removal of a part seem so simple. The only problem seemed to be that the part was placed in such a spot that it could be removed only by a mechanic whose arms took a size 34 sleeve, who was five feet eight and three quarters inches tall and who was extremely supple. This wasn't in the specifications. Any variation in the mechanic's size would necessitate the removal of seven other vital parts before the "different" man, who was not standard in the engineer's eyes, could get at the part he sought in the first place.

Solvents are like that. They must be selected on the basis not only of what they must do, but where and how they must accomplish their work. Since environments vary, as do soil, surfaces and workmen, their selection must be made, with all factors considered, on a performance basis.

It is quite true that this idea, like any other, can be carried to extremes which make it economically unsound. It is equally true that it might be possible in some industrial operations to select one solvent as a sort of "universal" solvent and get by with it for a while.

In the long run, however, specialized tools do a better and safer job. History shows that fingers were invented before forks, and spoons are relatively a "Johnny-come-lately" at the meal table. It was once considered, though not by

Emily Post, quite proper to spear one's food, hack it to pieces and convey the pieces to one's mouth on the point of a knife. As a result, chopped lips were the mark of a man who ate well! Still, chopped lips were both painful and a threat to continued good eating. This undoubtedly led to the ultimate popularity of the more specialized tools for eating which are the accepted standards by which we live today.

To carry the analogy further, those involved in safety work have somewhat the responsibilities of Emily Post. It is their function to rule on what is and what is not good manners for those who use solvents, the liquid tools which feed today's industry. Repeated cases of fires, dermatitis and chemical poisioning, in this day and age, are the mark of the uninformed, the slovenly and the careless.

Pitfalls of Modern Solvents

What are the pitfalls of modern solvents? There are few. The biggest one lies not within the solvent, but within the man who picks it out. If, as he should, he first analyzes the work and its environment, then secures adequate information about the solvent, its physical, chemical and physiological properties, he should encounter no serious problem. It should be noted, however, that sufficient instruction as to the latent hazards of the solvent should be conveyed to the man or men who use it. In short, select the solvent most capable of doing the work, in the area and conditions proper for doing such work, then instruct the men so that they will use and not abuse the product.

There are, of course, some solvents, such as carbon tetrachloride, which experience has taught us are too dangerous to be tolerated at all. Drastic action is necessary because there are some men and women who refuse to believe the evidence we try to show them. Under these conditions we simply bar the solvent from the plant, just as lead is barred as an ingredient in paints for toys and children's furniture. Even though our work forces are made up of the alert, the slow to learn, and even, to some extent, the unteachable, we must attempt by every possible means to teach all of them the basic facts of life about solvents. It is not only for plant and industrial safety, but for home safety as well.

"Newsweek" magazine, in its issue of December 16, 1957, carried a story which emphasizes sharply the increasingly critical need for broadening our educational efforts on the subject of the hazards of solvents. While the story concerns the search of misguided youth for new "kicks," it has, nevertheless, its counterpart in industry. The news story, titled "Sniffing the Deadly," relates the latest fad of some young people in buying rubber cement so they can breathe deeply of the volatile solvent vapors. Although the resulting "jag" may be pleasant momentarily, the aftermath is horrible to contemplate.

Education Necessary

Safety engineers tell me that the same situation is not uncommon with the elders who work in industrial plants. At one plant, a worker collapsed several times and required oxygen therapy in the plant hospital. Air measurements at the paint spray booth where he worked showed vapor concentrations of toluene to be far below the minimum safety standards. A watch was placed on the man, unknown to him. He was observed to dip a rag in the toluene drum, then to go behind a convenient wall and inhale the vapors. There was no choice but to fire him. This, however, doesn't cure the problem. There are similar cases of trichloroethylene "hop-heads." With education of workmen, plus constant supervision, the problem is diminishing. However, each new solvent brought into the industrial picture will, in its turn, produce the same old problem. That is, it will unless we undertake vigorous measures to educate and inform personnel of the penalties and consequences of misuse and misapplication before such practices start, instead of after.

In summary, modern solvents present few new problems. Certainly none that are basic and none that we are not equipped to solve. Their advantages lie in the great range of properties offered, which permit efficient application to the work that must be done. Their pitfalls may be summed up as: ignorance and failure to make the effort to comprehend their limitations.

As modern solvents are understood, we will find them disappearing from accident statistics as items of significance. The Safety Engineer CAN meet this challenge.

From an address presented at the Fifth Western Safety Congress.

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★ Tested and approved by Underwriters Lab.
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(For details, use Key # R-17 on card on page 1)

THE FIRE FRONT

What Burned In Large Loss Fires?

Americans burned up more of their property in major fires last year than ever before in history, the National Fire Protection Association reports.

The total cost of "large loss" fires in the United States and Canada during the period reached a record-shattering figure of almost $350 million.

While the number of major fires —with individual losses of a quarter million dollars or more— dropped slightly from 430 to 422, the dollar cost was about $20 million higher than the total in 1956, previous worst year in history.

The figures were reported in the annual analysis of large loss fires just completed by the non-profit fire safety organization's Fire Record Department. The 71-page study was published in the NFPA Quarterly Magazine for April.

Devastation by fires of all sizes in 1957 came to an unprecedented total of $1,275,000,000 in money losses and 11,300 lives taken, according to estimates reported earlier by the NFPA. While the 422 major fires analyzed are only a fractional percentage of all 1957 fires, they were responsible for almost 25 percent of the entire dollar loss.

Sharpest increase in loss was recorded in industrial plants, where 125 fires did nearly $95 million worth of damage. This was up more than $25 million from the previous record-breaking 1956. Major industrial fires were the primary factor in the over-all increase in large loss fire totals, offsetting improved records in hotel and other residential buildings, schools, churches and aircraft.

According to the NFPA analysis, absence of operating and adequate automatic sprinkler systems played the principal role in making big fires out of what might have been minor ones. Only in a very few instances did buildings have this protection, or automatic fire detection and alarm systems.

This bears a direct relation to the delayed discoveries and reportings of fires which occurred in about two-thirds of the cases, allowing the fire to grow to serious proportions before fire-fighting equipment and manpower could reach the scene.

Fire Losses Drop

Estimated fire losses in the United States during March amounted to $102,722,000, the National Board of Fire Underwriters has reported. This loss represents a decrease of 1.8 percent from losses of $104,565,000 reported for March, 1957, and a decrease of 1.1 percent from losses of $103,853,000 for last February (1958).

Losses for the first three months of 1958 now total $306,493,000, a decrease of 2.8 percent from the first three months of 1957, when they amounted to $315,406,000. These estimated losses include an allowance for uninsured and unreported losses.

Construction weaknesses ignoring fire safety standards also were a major factor in the extent of damage.

Division walls which would have limited the spread of fire were missing or substandard in more than two-thirds of the buildings involved. Open stairwells and elevator shafts were also noted frequently.

The National Fire Protection Association report urged remedying of these deficiences as the way to cut down the mounting toll of losses in major fires.

"These fire disasters are the product of faulty fire prevention thinking," it said. They will have served a purpose only if their lessons are "recognized and heeded by those responsible for the application of sound fire prevention and protection principles."

The largest single building fire loss in both the United States and Canada during 1957 was the $14 million conflagration which destroyed the Pequanoc Rubber Co. plant at Butler, N. J. Aircraft fire accidents took a toll of 222 lives in 1957, with damages totalling $108,665,000—an average of about $1,750,000 for each of the 62 accidents. This record was a substantial reduction from the previous year, when 87 accidents cost 333 lives and $122,830,000 in damages.

Eight major forest fires were reported for the year, involving a total loss of more than $32 million. Over $24 million of this was attributed to the fire which destroyed 24,800 acres of watershed in California's Angeles National Forest.

One hundred square miles of forest and 50 buildings were wiped out by the $1 and a half million fire in Massachusetts' Plymouth County.

Industrial Plants

In the record of all major building fires in 1957, U.S. and Canadian industry was the biggest loser. The cost of 125 fires in the period was close to $95 million. This was 8 more fires and a $25 million increase over 1956.

The growing industrial fire problem is sharply pointed up by a comparison with 1954, when the loss was a little more than $36 million.

Aside from the Butler, N. J. rubber plant disaster, the most costly fires were the $5 million loss in the destruction of a chemical plant at Nitro, West Virginia, and a $5 million fire at a Corner Brook, Newfoundland, pulp and paper mill.

Large loss store fires numbered 58 with a total loss in excess of

(Continued on page 49)

safety code for maintenance

This "Safety Code for Inspection, Maintenance and Protection of Fixed Foam Systems" was prepared by and reprinted through the courtesy of the Fire Equipment Manufacturers' Association, Inc.

Within the past forty years many types of fixed foam systems have been employed to provide fire protection. The systems protect risks involving flammable liquids in quantities from a few gallons to millions of barrels. For this reason plus the fact that much progress has been made in recent years, it is impractical to attempt to include in this Safety Code all types of foam systems which are in service.

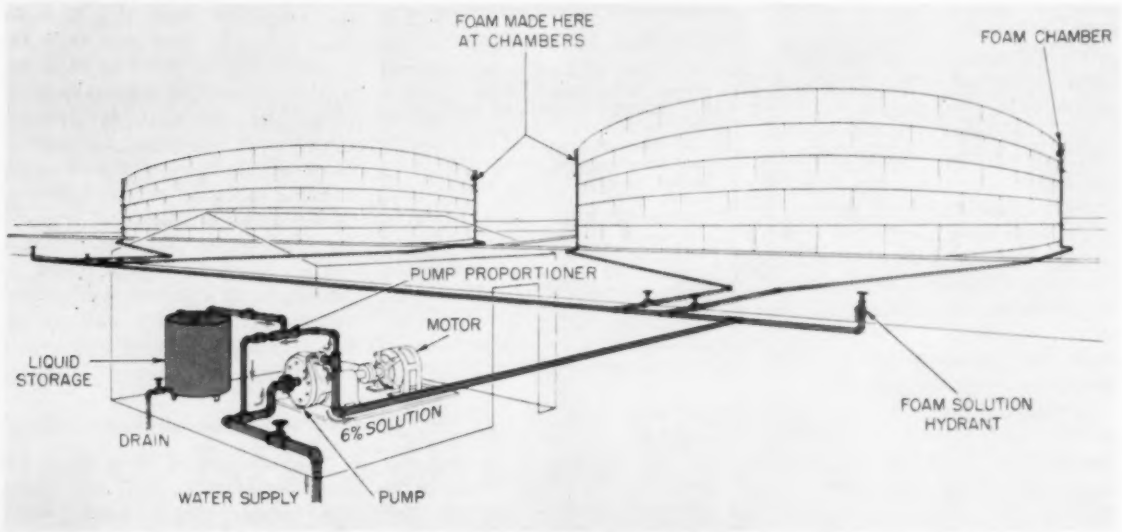
Included with any foam system is the manufacturer's layout prints and/or instruction book. It is recommended that any person attempting to make an inspection be thoroughly familiar with the contents of the instruction book. The layout prints should be readily available for reference.

If a qualified engineer is not available to execute the inspection, or make repairs, it is recommended that a manufacturer's trained representative be employed.

Inspection and Maintenance

All types of foam systems shall be inspected at regular intervals as prescribed by the manufacturer, or by the insurance carrier. Under adverse conditions the user may find it advisable to check certain parts of the system at more frequent intervals. At the completion of inspection be sure that the system is ready for immediate operation.

In general, foam systems can be classified as chemical foam, airfoam and indoor foam. For simplicity of inspection, check points have been listed under individual classification.



Picture shows control board, pressure line inductors, selection valves. Note storage tank and injection pump.

Scope and Purpose: The scope and purpose of this safety code are intended to insure proper inspecting, maintaining, and protecting of fixed foam systems.

Application: This safety code shall apply to indoor and outdoor fixed foam systems.

Definitions: Where the word "shall" is used, that provision is intended to be mandatory.

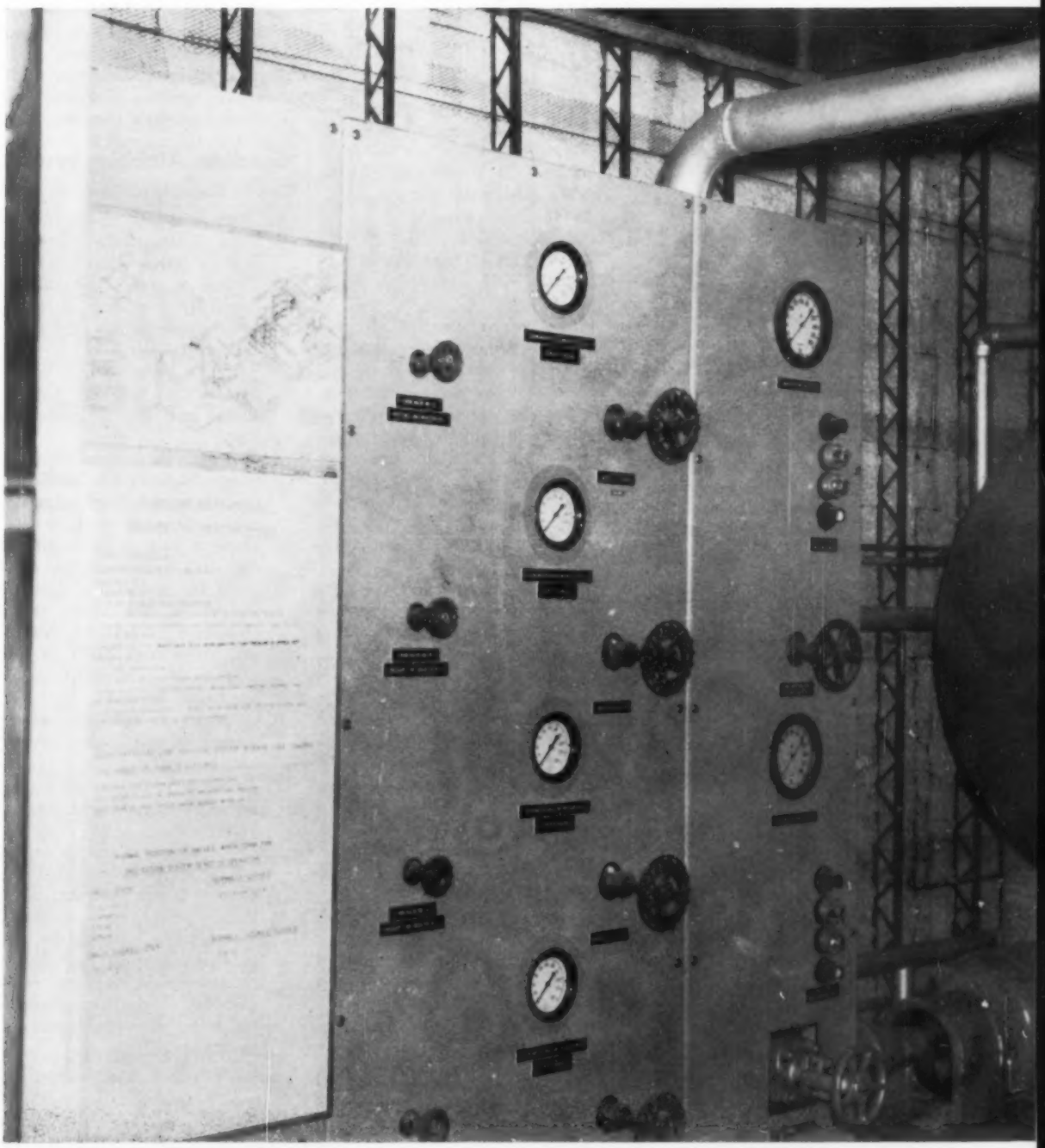
Where the word "should" is used, that provision is intended to be advisory or recommended good practice.

Chemical Foam Systems

1. **Twice a year inspect the supply of powder.**
   - **A. Check the quantity of powder on hand against the total requirements.**
   - **B. See that the powder is free from moisture.**
   - **C. Check powder pails for damage or rusted spots that**

(Continued on page 48)

# of fixed foam systems



A typical air foam installation for protection of tank-stored flammable liquids. Can be adapted to size needs.

How's that again...

An Insurance *refund?*

THAT'S RIGHT. And LEGGE may help you toward one, too.

Accident frequency is the barometer by which casualty insurance premiums are measured. High accident rate—high premium rate. Chief culprit, 9 times out of 10, is slip-fall mishaps.

In buildings where LEGGE Safety Polishes are used, such accidents are practically non-existent. An *over-all* Safety Program that includes LEGGE Maintenance usually means big savings 3 ways: on the costs of materials and labor; on the hidden costs of accidents; and on your insurance premiums.

Many LEGGE clients report not merely insurance reductions—but *voluntary refunds!* Why not plan a Safety Program around LEGGE? Start now by clipping the coupon. It may help you save thousands of dollars.

Walter G. LEGGE Company, Inc.
Dept. F-6, 101 Park Ave., New York 17, New York
Branch offices in principal cities. In Toronto — J. W. Turner Co.

LEGGE SYSTEM

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101 Park Avenue New York 17, N. Y.

☐ O. K. Show me how LEGGE can save me money.

☐ Send Free booklet on floor maintenance.

Name_____

Firm_____

Address_____

City_____ Zone___ State_____

(Use Key # R-20 on Inquiry Card on page 1)

Safety Code

(from page 46)

may have gone through the metal.

2. Twice a year remove generator hoppers and inspect water and powder passages. Water strainer, drain caps and clean-out plugs should also be removed and inspected at this time. Be sure all parts are replaced securely.
3. If a storage tank is used to supply water, check the level at least twice a year.
4. If a water pump is employed, check to see that it develops full or recommended pressure. Make sure there are no leaks around the bearing or gaskets. This operational test should be made once a month.
5. Once a month drain all pile lines. Close drain valves and replace drain plugs after draining.
6. Once a year subject all pipe lines to a hydrostatic test of 125 psi. To make this test, the flanges in the risers of the foam chamber should be disconnected and blanked off. After testing, drain all lines, remove blanks and reconnect flanges.
7. Twice a year subject hose to a hydrostatic test of 125 psi. Drain and dry all hose after tests.
8. Once a year, before making the pipe line or hose test, allow water to flow through the dual or single generators and discharge through hose or hydrant. Check to see that the required pressure is maintained at the generator inlet while water is flowing through.
9. Once a year calibrate the pressure gauges to make sure they register correctly.
10. Twice a year inspect the vaporproof diaphragms in all chambers.
11. Examine hose, hose reels, carts and hose houses periodically. See that hose is properly reeled and that the drum revolves freely.
12. Check operating instructions for legibility.

Indoor Foam Systems

1. Once a year recharge chemical foam system as recommended by the manufacturer.
2. Check all nozzles and discharge outlets for obstructions or damage. The number, size and position of these nozzles should conform with manufacturer's layout print.
3. All moving parts of the operating mechanism should be checked for freedom of operation.
4. Test the operation of all remote control devices by actually operating them without discharging the system.
5. Test the operation of any automatic system, following the manufacturer's instructions.

Outdoor Airfoam Systems

Can Be Basically Followed for Indoor

1. Once a month drain all pipe lines. Close drain valves and replace plugs after draining.
2. Twice a year test airfoam liquid by operating an airfoam nozzle on a test fire, fire drill or demonstration.
3. Twice a year subject hose to hydrostatic test of 125 psi. Drain and dry all hose after test.
4. Twice a year inspect the vaporproof diaphragm in all airfoam chambers and check all nozzles for obstruction or damage.
5. Once a year subject all pipe lines to a hydrostatic test of 150 psi. To make this test, the flanges in the risers to the chambers should be blanked off. After test, drain all lines thoroughly, remove blanks and reconnect flanges.
6. Once a year calibrate pressure gauges to make sure they register correctly.
7. Twice a year inspect airfoam liquid supply against total requirement.
8. Twice a year check air aspirating device to be certain the air passage is not obstructed.
9. Where pumps are employed, a monthly check should be made to make certain that full or recommended pressure is developed. Make sure there are no leaks around bearings or gaskets.

Drawing by courtesy of Walter Kidde & Co., Inc. Photograph by courtesy of Pyrene-C-O-Two Div., The Fyr-Fyter Co.

Copies of the "Safety Code for Inspection, Maintenance, and Protection of Fixed Foam Systems" are available from Fire Equipment Manufacturers' Association, Inc., Suite 759, One Gateway Center, Pittsburgh 22, Pa.

Large Loss Fires

(from page 45)

$26 million. This was $2 million more than the previous year. Biggest in the U.S. was the $1,200,000 destruction of a shopping center at Essex, Maryland; in Canada, a $750 thousand fire in a variety store at Springfield, Nova Scotia.

Warehouse fires of $250 thousand or more damage numbered 55 with a total loss of close to $30 million an increase of about $175 thousand over 1956. Biggest in the U.S. was a $5 million grain elevator fire in Chicago, Ill.; biggest in Canada was a tire and food warehouse in Toronto, Ont., destroyed at a loss of $2 million.

Schools and colleges reduced their losses from major fires in 1957 by more than $1,500,000 from the previous year. Total damage from 19 fires was close to $7,500,000. Largest fires were the $850 thousand destruction of a parochial school at Ottumwa, Iowa, and an $800 thousand fire at Kansas State College in Manhattan, Kans.

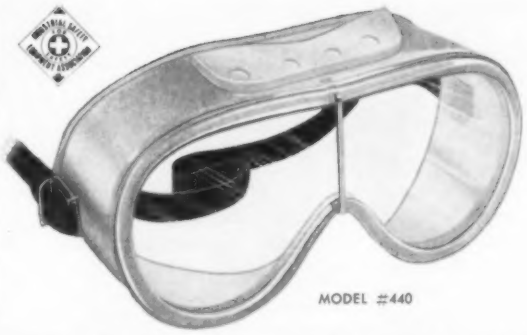
N. Y. Safety Convention

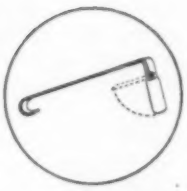
(from page 32)

tors in general, but I heartily disagree when speaking of my own company."

Mr. Culkin described a safety course his company conducted for supervisors, foremen and stewards, safety meetings for employees and other features of a program. He said the maintenance contractors and the oil company maintained independent safety departments and dispensaries, but cooperated in all safety matters.

The newest hazard in the atomic energy industry is one of emotional and psychological effect rather than physical radiation, an Atomic Energy Commission scientist told the convention. Hanson Blatz, chief of the A.E.C. radiation branch, said the emotional and psychologic hazard came from insufficient understanding by the general public. He said the producers of atomic power, manufacturers of radioactive isotopes and other branches of the industry had done a vast amount of research to make





Soft Vinyl COVER GOGGLES

***Lens is held firmly** in place by strong metal lock bar. Annealed end piece on the lock bar can be lifted with a fingertip for quick, easy lens replacement.

MODEL #440 provides all-around protection against heavy-impact, chemical splash, dust, sparks or molten metal. Soft vinyl frame form-fits any shape face. #440 is large size which fits over any prescription glasses.

MODEL #440M provides a snug fit for medium and small size faces. It supplements the large #440 to end all cover goggle problems.

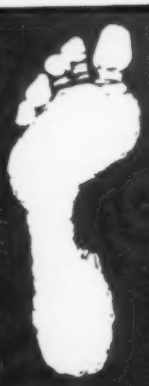
For details, see your authorized EYE SAVERS supplier or write direct.

WATCHEMOKET OPTICAL CO., INC.
232 West Exchange Street
Providence 3, R. I.

Quality Eye Protective Equipment *Made by the Leaders in Plastics*

(For details, use Key # R-21 on card on page 1)

Accepted Procedure . . .



against
Athlete's foot
with modern
DOLGE Fungicides

DUSTING Alta-Co Foot Powder on the feet and inside shoes
FOOT BATH Alta-Co Powder dissolved in water for group prophylaxis
FLOOR WASH H.D. Fungicide diluted in 300 parts water—mop on floor

Write for Booklet on Athlete's Foot Control

expendable DOLGE
WESTPORT, CONNECTICUT

(For details, use Key # R-22 on card on page 1)

the handling of radioactive materials safe. Mr. Blatz said further education of the public as to the nature of radioactivity and the safety procedures that have been devised was needed to reduce the feeling of apprehension.

"Today, virtually every material can be produced in a radioactive form," said Mr. Blatz. "It is believed that before long every industry and trade will find some use for such materials. In making plans to guard workers against any possible harmful effects of being exposed to radiation, we have available a wealth of data. This is a result of the most extensive scientific investigation to which any hazardous material has ever been subject."

The nation's safety engineers were exhorted to become the recruiters and trainers for "a new profession now struggling to be born—catastrophe control, non-military defense, and emergency planning."

Leon Weaver, emergency planning consultant to the industry office of the Federal Civil Defense Administration in Washington, D. C., said that catastrophe control and planning for emergencies were "here to stay" as part of the nation's non-military defense.

These fields, he said, would place increasing responsibility upon safety engineers, whose main field so far has been in industrial accident prevention. Mr. Weaver outlined types of assistance and training now available from the Federal Government to emergency planners in industrial and business concerns. He called upon the safety engineers to consult and coordinate their plans with local and state civil defense authorities.

A more accurate determination of accident costs was called for by D. A. Patrician, staff administrator for safety and accident prevention of the Radio Corporation of America. He said that many management executives as well as workers would be surprised at some of the "hidden" costs of accidents.

Mr. Patrician said an estimate of the cost of an accident should include:

Medical Costs (treatments, x-rays, suturing, medication, etc.)

Days lost

Compensation awards

Supplemental benefits

Loss of productive time of the injured (initial visit to medical and all revisits for treatment)

Loss of productive time of employees other than the injured (curiosity, to offer assistance, talking about accident)

Loss of time of supervisor (to rearrange schedules, reroute work, investigate accidents, etc.)

Time in preparing records and reports (medical records, safety records and reports, supervisory reports, etc.)

Cost of training new employee to do work of injured during convalescence.

Loss of efficiency of injured employee when he returns to his job

Cost of overtime necessitated by accident (employee's overtime wages, wages of supervision and other fixed costs)

Damage to machines and equipment (including cost of machine parts, maintenance, time to repair, cost of processing purchase orders, etc.)

Scrap, waste and spoilage.

In self-insured locations, administrative costs, legal fees, court costs, medical costs, etc.

Miscellaneous costs (liability claims, loss of profit on time contracts, and other unusual costs.)

"While many of the above cost factors can not be measured precisely," said Mr. Patrician, "they can be estimated fairly accurately. In arriving at estimates, the Safety Administrator should rely on the experience of production supervisors, purchasing agents, maintenance foremen and others.

"Accidents disrupt the smooth and efficient coordination of men, machines and material. They produce a serious condition in terms of employee relations, cost, loss production, and product or equipment damage. Preventing them is simply a matter of good business practice."

(Coverage of the twenty-eighth New York Convention will be continued in the July issue.)

Materials Handling Show

Materials handling problems in the atomic and space age will be among the topics featured during the Materials Handling Conference at the Public Auditorium, Cleveland, June 9–12, 1958, it was announced by James N. Landis, president, American Society of Mechanical Engineers, which is sponsor of the conference.

The conference will be held concurrently with the National Materials Handling Exposition, produced by Clapp & Poliak, Inc., New York exposition management firm.

Model Missiles

(from page 12)

firing pads equipped to measure thrust, and for proper firing ranges, clearance with CAA etc. for serious students of rocketry."

The Pikes Peak Rocket Advisory Council is a laudable, intelligent approach to the problem. This same view of supervision, guidance and control has been practiced by Dr. David Dennis of McKinley High School in Albuquerque. Dr. Dennis organized a club two years before Sputnik so that his students could study missiles and space travel. With assistance from Sandia Base personnel and the Southwest Rocket Club, Dr. Dennis' junior high school pupils have made amazing strides in their quest for scientific knowledge. Warren Roberts of Los Alamos and Harry Stine formerly of Sandia and now trustee of the Model Missile Association were early helpers in Dr. Dennis' organizing efforts.

According to the February 1958 issue of the American Municipal News, amateur rocket launching is creating many new problems for cities across the country. Many communities prohibit the setting off of explosives or fireworks, however, the National Fire Protection Association's Model State fireworks code has not been adopted by many states.

The NFPA recommends that the hazardous phases of rocketry

should be under strict supervision by qualified personnel at specified safe locations.

George A. Mozealous, National Director of Exploring Service of the Boy Scouts of America recently wrote that Explorer Scouts are looking longingly at outer space. He mentioned that the BSA are working with the American Rocket Society in the development of program material. The new manual being developed for Boy Scouts will contain such words as astronautics but little of specifics will be incorporated because "developments are too rapid to be included in a publication which takes eight months from copywriter to consumer." The Scout Director said, "Our new program will make it possible for local Explorer posts to emphasize the program in scientific fields."

The Association of Missiles and Rocket Industries was quoted as urging: "Public safety officials in all areas should publicize the dangers of ad lib experiments by amateurs."

CAA has voiced increasing concern over the hazard to air travel. James T. Pyle, Administrator of the CAA, has warned that all proposed rocket launchings should be discussed in advance with CAA Inspectors as well as local police and fire department officials. L. G. Metzger, General Safety Inspector for CAA District office No. 5 recently stated, "There is no attempt on the part of the CAA either to discourage or to interfere with rocket or missiles experiments. The only interest of the CAA in the matter is the protection and safety of the flying public. The CAA does not have as yet any clearly defined legal authority in these matters.

"Only wide publicity as to safe areas and practices and good public relations are the present basis to protect the public. These can be worked out with good supervision of local clubs and local authorities. All proposed launchings must be discussed with CAA Inspectors if they are anywhere along the airways or in the vicinity of airports."

A number of safety rules to guide persons interested in amateur rocketry are listed in the accompanying material.

UNION PACIFIC RAILROAD

UNION PACIFIC RAILROAD CUTS WAREHOUSE ACCIDENTS WITH

SHOCK-PROOF Kosch Steering-Aid

Both the Stores and Mechanical Departments of the Union Pacific Railroad recently installed approximately 100 Kosch Steering-Aids on the fork lift trucks operating in their warehouses and shops.

SHOCKPROOF STEERING reduces accidents! Kosch Steering-Aid prevents road shocks from reaching the steering wheel and eliminates kickback. Operator has complete control, without danger of wheel-spinning. Steering-Aid holds guide wheels in the position they are set — even over rough ground and foreign objects. Automatic operation. Easy to install.

Let Kosch Steering-Aid help you and your plant build a better safety record. WRITE TODAY for complete information about Kosch Steering-Aids for the fork lifts in your plant.

KOSCH MANUFACTURING CO., Dept. SM-1, **Columbus, Nebr.**

(For details, use Key # R-23 on card on page 1)

My eyes! My face!

Provide instant relief with... HAWS

EMERGENCY EYE and FACE WASH FOUNTAINS

Eye and face hazards are inevitable in industry... so take positive steps to reduce the extent of injury and minimize insurance claims. HAWS Emergency Eye and Face Wash Fountains flood contaminated areas with water – instantly ridding face and eyes of caustics, chemicals and dangerous particles. This **instant relief** may well prevent permanent damage – bridging the gap until medical aid arrives. Install extra safety – HAWS Emergency Fountains and Drench Showers.

Write today for detailed information on the complete HAWS line of emergency facilities. HAWS DRINKING FAUCET COMPANY, 1443 Fourth Street, Berkeley 10, Calif.

Model 8933: Face spray ring acts simultaneously with eye-wash, sending controlled streams of water from specially designed twin fountain heads.

HAWS

(For details, use Key # R-24 on card on page 1)

KEEPING UP WITH

At this time of year many industries are getting ready to close for summer vacation. This should be the busiest time of year for maintenance engineers. Plants will not be operating at full efficiency. Operations which might hinder repair work will be shut down. This is the time for maintenance men to take stock of their plants and take those measures which will prevent operational breakdowns and accidents through an annual summer check-up.

Such a check-up should include a complete inspection of all buildings to ascertain whether roofs, walls, floors, machines, processing and maintenance equipment require repair or replacement. Some of the products listed on the following pages will help you to select new equipment or make the necessary repairs to prevent more costly expenditures of time and money in the future. Listed below are a few reminders for your summer check-up:

Your Summer Maintenance Check-Up

General considerations:

Aisles, stairs and floors are free from deteriorating marks.

Waste disposal systems and units are clean and in good repair.

Washroom facilities are adequate for the number of employees to be serviced.

Outside areas have been maintained—free from all weeds, tall grasses and other fire-spreading hazards.

Materials storage facilities free of all fire hazards and in good repair.

Basements—All obstructions have been removed and pipes and heating units are insulated properly and in good repair.

Loading docks, stairs and platforms are clear of obstructions, in good repair and well furnished with guard rails and other safety devices.

Concrete, steel and wood beams, columns and walls have been checked for rotting, corrosion, settlement, cracks, loose coping, spalling, and all rivets and welds are in good condition.

Roofs have been checked for leaks, drainage and loose materials.

Chimneys have been checked for settlement, stability, cracks, corrosion and lightning protection.

BUILDING MAINTENANCE DEVELOPMENTS

HEAT-RESISTANT PAINTS

The addition of three new colors to its line of C-I "Extra High" heat resistant paints is announced by Chem Industrial Co. Formerly offered only in aluminum, it is now available in gold, metallic red and metallic blue. All four shades are said to resist temperatures up to 1700° F without flaking, blistering or burning.

Each C-I "Extra High" coating is composed of a clear silicone base with a special metallic pigment. This combination air dries to a bright finish in approximately 30 minutes. Then, when heated, it is reputed to virtually fuse with the surface upon which it is applied.

According to the manufacturer, "Extra High" forms a metal coating that resists moisture, corrosion, mild acids, alkalis and industrial fumes. It is recommended for use on condensers, heat lines, ovens, compressors, engine heads, mufflers, radiators, stoves, exhaust manifolds, etc. Because of its unusual heat resistance, it can also be applied over many surfaces heretofore regarded as "unpaintable." It can be applied by either brush or spray gun. It is available in quart and gallon cans, and 5-gallon pails.

For details, use **Key # BM-1** on inquiry card on page 1.

UTILITY STEAM CLEANER

An engineered compact new steam cleaner has just been announced by the Clayton Mfg. Co. Its name is the Clayton-Kerrick 60 "Handy man" Steam Cleaner. It has a 60 gallon capacity and simplifies any light duty general utility cleaning. The "60" is the little brother of Clayton's "120" steam cleaner for more formidable cleaning assignments.

The "60" is a complete self-contained unit. Operating on any water pressure, it requires no auxiliary pump. It carries a 10-year service guarantee, assuring the purchaser protection against excessive and recurring service charges.

The ability of steam cleaners to do a job with maximum impact and thoroughness depends upon perfect balance. The right pressure, the right temperature and moisture of the cleaning solution, the right soap content are combined in Clayton-Kerrick cleaners in a carefully engineered balance. One result is a thermal efficiency in excess of 65 percent in the model 60, substantially lowering fuel costs.

For details, use **Key # BM-2** on inquiry card on page 1.

WATERLESS INDUSTRIAL CLEANER

Those charged with maintenance and housekeeping operations (aboard ship or on land) can now standardize on one product for heavy duty cleaning. Made by Fine Organics, Inc., "Stratogel Waterless Cleaner," developed for use aboard U. S. Navy Aircraft Planes, eliminates the necessity of stocking many different types of liquid or powder compound cleaners—**and** the use of water. A concentrated paste-cream can be applied quickly and easily with damp cloth or sponge. It is said to remove oil, grease, scum and other soils from unpainted and painted aluminum, copper, steel and other metal surfaces; from glass, plastic, fiber glass; from painted and varnished wood; from linoleum, tile, porcelain, as well as leather. Dirty engines, bilges, galleys, stoves, iceboxes, toilet fixtures, instruments, furniture, venetian blinds, cushions, etc. all respond to the Stratogel formula. It can also be used with electric floor maintenance machines for stripping wax and polish accumulations, and, according to the manufacturer, is excellent for removing heavy, greasy carbon and other soils from the hands.

For details, use **Key # BM-3** on inquiry card on page 1.

TWO NEW INSECTICIDES

Two new insecticides, one in a pressurized spray and the other in liquid form, have been developed for commercial and institutional use by S. C. Johnson & Son, Inc. The pressurized spray is known as Johnson's Raid Bug Killer and the liquid product is called Johnson's Raid Insect Spray. Both are for use in hospitals, industrial plants, institutions, dairy plants, warehouses, and similar large installations.

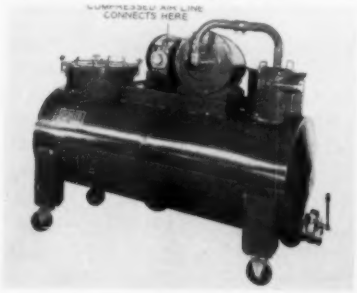
The pressurized spray is packed in 16-ounce containers and the liquid, for use in mechanical dispensers, is available in one-, five-, 30- and 55-gallon containers. Although they are non-toxic and safe with respect to human beings and pets when used as directed, both products contain a high concentration of synergized pyrethrins. The liquid formula, even at half strength, complies with the U. S. Department of Commerce Commercial Standard CS72-54 for Grade AA Household Fly Spray. The company claims the products will kill even those flying and crawling insects that have built up resistance to DDT and chlordane. The products are not classified as "residual" but Raid deposits will kill roaches and other crawling insects up to 48 hours after spraying.

For details, use **Key # BM-4** on inquiry card on page 1.

COMPRESSED AIR POWERED COOLANT CLEANER UNIT

The Spencer Turbine Co. has introduced a new vacuum unit for removing cutting oils, coolants, etc. from sumps of all types of machine tools. The new Sump-Vac is driven by an air motor and can be powered from an 80 lb. compressed air line. The unit has a 225 gallon capacity, has wheels for easy mobility and a hook arrangement which permits attachment to in-plant trucks for movement around the factory.

An important advantage of the new machine is the fact that no liquid passes through the vacuum producing unit. Consequently, moving parts are free from any abrasive or corrosive action of the liquids and grit being handled. As



a result, maintenance requirements are lessened and operational life of the unit is lengthened. Sump-Vacs, also available in 55 and 125 gallon capacities, can all be provided with single or polyphase electric motor drive where this is preferred.

For details, use **Key # BM-5** on inquiry card on page 1.

LOW COST INCINERATOR

A new, redesigned, 10-bushel outdoor incinerator for industrial, commercial, and institutional use is announced by Alsto Co. Named Alsto Model C10, the new, complete unit requires no installation cost or auxiliary fuel. It burns damp, green, or dry refuse to fine ash in any weather. Scientific draft control ends danger of burning, blowing bits of paper—minimizes smoke and smell.

The outdoor incinerator is safe to use 10′ from buildings. It needs no watching. It burns sweepings, packing, cartons, waste paper, food scraps, rags, etc., to fine ash. Made of aluminized steel (molten aluminum bonded to steel), the C10 features new replaceable double panel construction, new hinged loading hood, and new shovel-wide ash cleanout door. The unit stands 52″ high x 35″ square at base, with 8″ high detachable ash pan base and grate.

For details, use **Key # BM-6** on inquiry card on page 1.

ANTI-RUST PAINT

A new anti-rust paint, which can be applied with a minimum of surface preparation, is announced by National Asphalt Corporation. Offered under the trade name NACOR, the new coating is reputed to be suitable for use on most interior or exterior rusty surfaces

without necessity of wire brushing, scraping or sandblasting. It can be applied by brush, spray or dip. No primer is required. One coat is sufficient for most applications. Due to inclusion of a newly-developed additive, NA-17R, combined with special chromate pigments, the paint is said to possess an unusual affinity toward metal. The manufacturer claims that it tends to penetrate existing rust layers and seal surfaces against further rust action. NACOR anti-rust paint is available in 7 colors—black, aluminum, red, oxide green, chrome green, gray, white—and clear. It is packaged in 5-gallon cans and 30- and 55-gallon drums.

For details, use **Key # BM-7** on inquiry card on page 1.

SILICONED ROOF COATING

Siliconed Rubberseal, a new roof coating introduced by the Monroe Co., Inc., is said to protect roofs against water, sunlight, temperature extremes and a variety of industrial gases and fumes. It may be used on felt, tar paper, gravel or composition roofs, pitched or flat. Intended for use on either old and new roofs, it is unaffected by expansion or contraction, extremes of heat or cold and will not crack or blister.

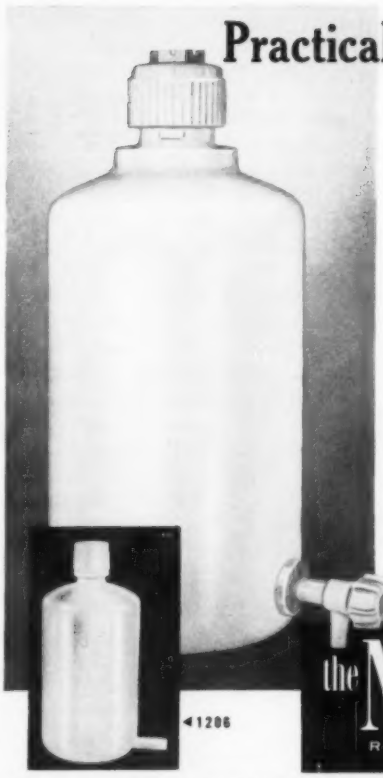
According to the company, the coating can be applied by inexperienced workmen, and may be brushed or sprayed on. It is both non-evaporating and non-settling.

For details, use **Key # BM-8** on inquiry card on page 1.

LAWN MOWER SPRAY

An improved grade of Easy-Cut that stops grass and foliage from sticking to hedge clippers and grass mowers and trimmers is announced by Speco, Inc. A colorless spray, it is said to keep grass off all metal parts, prevent clogging and eliminate the need for frequent cleaning. Because it lessens the load on blades, it is reputed to prolong the sharpness and service life of any garden cutting tool on which it is applied; recommended for use on blades, cutter bars, wheels, housings and decks of hand, rotary and reel-type power lawn mowers. Besides stopping grass build-up, it provides an invisible protective coating that resists rust and corrosion. The manufacturer also recommends a final spray application at the end of the cutting season.

For details, use **Key # BM-9** on inquiry card on page 1.



Practically indestructible!

NALGENE POLYETHYLENE CARBOYS AND BOTTLES provide reliable protection from breakage in handling caustics and acids. *Good-looking*, light, easy to handle, chemically inert and heat resistant they're extremely useful in plants and laboratories.

1208—CARBOYS ASPIRATOR
with ½" all polyethylene needle type spigots.
Sizes Available: 2 gal, 5 gal, 6½ gal, 13 gal. Priced from $19.80 to $37.80 each.

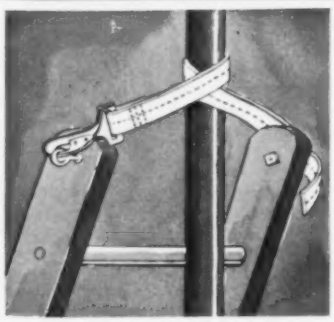
1206—BOTTLES, ASPIRATOR
with serrated tubing outlet.
Sizes available: 32 oz, ½ gal, 1 gal, 2 gal, 5 gal, 6½ gal, 13 gal. Priced from $2.65 to $28.75 each.

Ask your dealer for catalog E-956

the NALGE CO. Inc.
ROCHESTER 2, NEW YORK

WORLD'S LARGEST PRODUCER OF POLYETHYLENE LABORATORY WARE!

(For details, use Key # R-25 on card on page 1)



SAFE-HI LADDER LASH NEW STEP UP IN CLIMBING SAFETY . . .

Can Be Used on Horizontal or Vertical Poles or Pipes!

Knotty ladder ropes have finally come to the proverbial "end of their rope" since the invention of Ladder Lash, latest product of Rose Mfg. Co. The Safe-Hi Ladder Lash, a parachute web strap, solidly anchors ladders for high-climbing workmen, ending the hazards of wobbling, tottering ladders. Ladder Lash will anchor on poles up to 20" in diameter making it ideal for utility pole use as well as any other horizontal or vertical poles or pipes.

No Groping in Mid-Air

Ladder Lash does away with top-rung confusion. In one quick motion the strap is wrapped around any horizontal or vertical pole, the forged steel snap is clipped into the swivel eye bolt and the strap is pulled through the adjustment slide until taut. A simple device, Ladder Lash is easily attached to any ladder. Workmen are sure to like the dependable safety features of the Safe-Hi Ladder Lash.

Safe-Hi Pole Grip Adds Extra Safety Feature

Use Ladder Lash and Pole Grip together for the extra measure of safety. Safe-Hi Pole Grip, already favored by "Higher-up's," is made of 4-ply web strap 26"x1¾" wide with a center section of neoprene tread for super gripping strength on vertical poles.

#632—Pole Grip **#645—Ladder Lash**

Safe-Hi ROSE MANUFACTURING COMPANY
2700 W. Barberry Pl., Denver 4, Colo.

(For details, use Key # R-26 on card on page 1)

NEW GERMICIDE CLEANER

Huntington Laboratories has announced the availability of a new detergent-germicide called Hi-Sine. It reportedly has wide-range activity and rapidly kills Tubercle Bacilli and Polio Virus as well as other Pathogenic Bacteria.

For added safety, the germicide has a built-in effectiveness signal that is reliable regardless of the water hardness or temperature. Hi-Sine, when freshly diluted, has a rich amber color. As it is consumed through use, the color fades. When the amber color is present, Hi-Sine is being used safely. When the color fades, a fresh solution must be prepared.

The makers say that it is safe on all flooring surfaces. It cleans and disinfects: floors, dishes, thermometers, walls, utensils, instruments, equipment, receptacles, rubber goods, furniture, lavatories and even conductive flooring. Available in one gallon containers, Hi-Sine is extremely concentrated. It is nontoxic and is non-irritating to human beings.

For details, use **Key # BM-10** on inquiry card on page 1.

IMPROVED REROOFING MATERIAL

Improvement of its Vulca-Dek system to simplify installation work and further reduce re-roofing costs, is announced by The Monroe Company, Inc. The process permits installation of new roofs right over old ones. It eliminates the necessity for removing old roofs and does away with heating of roof coating, hot mop applications and use of gravel. Consequently, there is no fire danger.

Basis of the improved Vulca-Dek method is the recent development by Monroe of a new type of Hold-Tite sealing cement. This employs new plastics which render it even more adhesive than its predecessor materials. It is said to virtually vulcanize new felt to old surfaces in addition to bonding individual felt piles firmly together.

Other products employed in the Vulca-Dek method are: heavy-duty, asphalt-saturated 53-lb. roofing felt and Siliconed Ruferseal. The latter is spread completely over the surface as the final step in installation of new built-up roofs. These can be constructed in either single or 2-ply types.

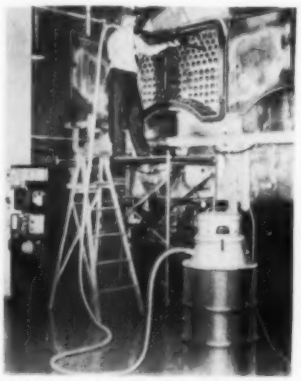
For details, use **Key # BM-11** on inquiry card on page 1.

BOTTLE-CRUSHER

An effective solution to the costly and dangerous problem of disposal of unwanted glass is now offered by the Model BC-50 Bottle-Crusher, product of the Vis-O-Lite Company, Inc. As fast as bottles, jars, vacuum tubes, light bulbs are fed into the hopper, a powerful electric-driven rotor quickly and safely grinds the glass into small fragments and deposits the waste into a sealed steel receptacle.

Equipped with a safety self-closing hopper lid, a safety rubber curtain and a filtering system that keeps the air free of silicon dust, the unit is compact and simple to operate. It is a safety necessity for bottlers, food packers, drug, cosmetic and sundry manufacturers, restaurants and hotels, laboratories, etc. Powered by a ¼ H.P. motor, the Bottle-Crusher accepts bottles and other glass objects up to five inches in diameter.

For details, use **Key # BM-12** on inquiry card on page 1.



NEW METHOD FOR BOILER CLEANING

Suction cleaners to remove soot from tubular boiler flues in large and small heating plants have been developed by The Kent Co., Inc. The company produced initially a tool for use in flues to loosen soot. At the same time, the firm designed a suction nozzle to remove loosened soot.

The old method of poking soot out with wire brushes causing it to gather in the smoke chamber resulted in a great deal of soot being scattered throughout the neighborhood. Another factor was that cleaning boiler flues was a very dirty job. Attendants doing this work disliked getting blackened with soot from head to foot. It also meant the boiler room would get very dirty. A great many boiler flues have been cleaned with a steam tool to blow the soot out, but this was found to cause even greater air pollution. The need for maintaining clean boiler tubes can best be illustrated by the fact that even $\frac{1}{32}$" of soot build-up reduces heat transfer efficiency by 9.6 percent; $\frac{1}{16}$" reduces efficiency by 26.2 percent. This means that 10 to 26 percent or more of management's fuel bill is wasted by improper maintenance of the boiler.

For details, use **Key # BM-13** on inquiry card on page 1.

BIL-JAX ALL PURPOSE SCAFFOLD

Unit easily erected by one man . . . can be rolled thru standard doorways . . . straddles desks, files, counters, machines . . . can ride freight elevators . . . all without dismantling. Work surface is no-slip expanded metal.

SALES AND RENTAL OUTLETS IN PRINCIPAL CITIES

EXPORT REP.:
MELVIN PINE & CO.
125 Broad St., New York 4, N. Y.

WEST COAST REP.:
A. PALMER SCAFFOLD CO.
3928 San Fernando Road
Glendale 4, California

"Gets you up in the world"

Send for facts on complete Bil-Jax line.

BIL-JAX, INC. • ARCHBOLD • OHIO
SCAFFOLDING • TRESTLES • HOIST TOWERS • STAGES

(For details, use Key # R-27 on card on page 1)

Is this your problem?

COOLANT SLUDGE

Solve messy coolant sludge pickup with Hild's transferable head vacuum cleaner. Collects waste sludge in your own 55 gallon drums where it can be disposed of without rehandling. Regular maintenance of oil sumps and circulating pumps prevents line clogging which often requires disassembling of coolant lines . . . a costly and time consuming operation.

Model 655, Twin 1½ h.p. motors

Hild's model 655 can be used with ½", 2" and 3" hose . . . available with easy-to-use attachments for everything from overhead beam dusting to furnace cleaning. Performs efficiently with single motor for normal wet and dry maintenance work — other motor can be detached for use as blower or portable vacuum cleaner.

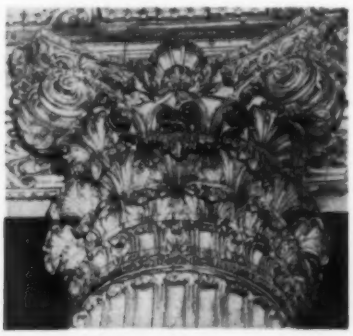
Write for complete information

HILD FLOOR MACHINE COMPANY
1217 W. Washington Blvd., Chicago 7, Ill.

(For details, use Key # R-28 on card on page 1)

ELECTRONICS USED TO CONTROL BIRD HAZARDS

Recent studies have shown that maintenance engineers consider birds a major hazard to sanitation and industrial health. Bird droppings have a high acid content which eats into structural materials defacing property. Pigeons and other birds are known disease and virus carriers. Parrot fever, psittacosis, pneumonia, ornithosis, toroplasmosis, hog cholera, histoplasmosis and possibly polio are known to be transmitted by our winged friends.



Electrepel, Inc. has announced a new system which is said to eliminate birds permanently from municipal and industrial buildings. This U. L. approved system incorporates a Model 101A pulse generator and transformer with a wire field mounted on ceramic insulators to repel birds. Installed on buildings the system is inconspicuous and non-injurious to both humans and the birds. A lock switch control may be installed in any convenient location—a plant manager's office—for proper supervision.

For details, use **Key # BM-14** on inquiry card on page 1.

3-WHEEL MAINTENANCE TRUCK

A brand-new industrial maintenance truck that runs on three wheels, is powered by electricity, has built-in work facilities, carries loads up to one ton, and speeds a maintenance crew along narrow factory aisles to plant trouble spots has been developed by the Electri-Car Division of Victor Adding Machine Co. The Electri-Car Maintenance truck features extreme maneuverability, a stand-up driver, a sit-down rider, four industrial batteries and a built-in automatic battery charger, large work bench with vise, built-in tool box and a large load area protected by steel and aluminum stakes. It has a gear motor especially built for both continuous and intermittent heavy-duty operation. The motor gives highly efficient direct-in-line, two-wheel drive. Built to be "driver-serviced" from "topside," the Victor truck has a lift-up body for easy access to batteries and mechanical parts.

For details, use **Key # BM-15** on inquiry card on page 1.

PAINT BRUSH STORAGE UNIT AND CONDITIONER

Storing paint brushes in open pots and cans containing combustible solvents presents a serious fire hazard in the paint shop. This hazard is said to have been eliminated by storing brushes in a "vapor type brush conditioner" manufactured by the Wisconsin Laboratories, Inc. Called "Protexem" the unit stores brushes in an airtight metal container with a safety cover.

A vaporizing solvent evaporates from a wick or liner inside an airtight container. The vapor produced by this solvent is purported to penetrate the brush and dissolve the binding oils or resins in paint, varnish, enamel or shellac. Brushes are kept soft and ready to use. The solvent vapor is claimed not to damage the bristles or the setting of the brush, whether natural or nylon. The vapor solvent is available in pints and quarts.

For details, use **Key # BM-16** on inquiry card on page 1.

ANTI-BACTERIAL DUST CONTROL EMULSION

Floor Mate, a new dust control emulsion with anti-bacterial action, has just been introduced to the trade by the Industrial Maintenance Chemical Division, R. M. Hollingshead Corporation. The product was developed to meet the need for a dust control compound that combines maximum dust pick-

up, sanitizing action, and convenience in use. The compound is ready for immediate use—no guessing at dilutions, and no mixing is required. Mops and cloths treated with Floor Mate pick up and hold dust, removing it from surfaces, and do not merely scatter dust over new areas. As furniture and floors are dusted, the emulsion sanitizes the surfaces in the same operation. This sanitizing action helps prevent skin irritations due to bacterial contamination. Dust mops and cloths may be treated with Floor Mate by immersion or by spraying, and may be used either damp-dry or completely dry. One square yard of treated cloth will dust approximately 6500 square feet of floor area. The product has a pleasant mild aroma. It is non-flammable, and non-toxic on the hands and available in 5-gallon open head drums.

For details, use **Key # BM-17** on inquiry card on page 1.

RADICALLY NEW SAFETY SOLVENT

"Safety-Solv," manufactured by Brulin & Co., Inc., is purported to answer the need for a general purpose degreaser to clean production machinery, transportation and communications equipment or any area where work must be done without presenting a health or fire hazard. Solvent is a liquid possessing no noxious odor and can be used undiluted or in solution. The manufacturer says it is the first liquid cleaner concentrate of its kind that can be diluted with water to remove oil and grease.

Mixture can be applied with a spray gun, mop or brush in dilution of 1 part solvent to 25 parts water and still retain its effectiveness. Most effective proportions for average cleaning problems is 1 part solvent to 8 parts water. "Safety-Solv" can be used for steam cleaning, to clean greasy floors, metal surfaces, painted areas and plastics. Cleaner has U. S. Coast Guard certification for use on-board vessels and U. L. approval to assure its non-flammability.

For details, use **Key # BM-18** on inquiry card on page 1.

For additional information on Maintenance Products, see the new edition of

BEST'S SAFETY MAINTENANCE DIRECTORY

after the city, before the state the ZONE keeps your mail from being late

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

inside the trade

The *QUAKER RUBBER DIVISION, H. K. PORTER COMPANY, INC.*, recently announced the appointment of two Texas firms as stocking distributors of Quaker's Industrial Rubber Products.

The *F. W. Heitmann Co.* of Houston, will be Quaker's distributor in the Harris County area, and the *Jess McNeel Machinery Corporation* of San Antonio, will cover the San Antonio, Austin, West Texas and Rio Grande Valley areas.

Both distributors will carry a complete line of pre-tested industrial rubber products and industrial rubber hose. Engineering specialists and field representatives will be available at all time in connection with the application and use of any Quaker Rubber products through both companies.

James F. Ham has been appointed a product line manager for the safety products division of *MINE SAFETY APPLIANCES CO.*, according to *H. N. Trice*, manager of marketing services. Mr. Ham, formerly a supervisor in the marketing division of H. J. Heinz Co., received his A. B. and M. A. degrees at Harvard University.

Completion of a new plant and laboratory facilities which will greatly expand its manufacturing and delivery potential for the Detroit market is announced by *E. F. HOUGHTON & CO.* The plant is located at Lumpkin Avenue and Detroit Terminal Railroad and is served by a freight siding and motor truck lines, assuring prompt deliveries. Twenty-four-hour delivery on standard volume products in the Detroit area is the objective. Houghton's Detroit Sales Division is headed by Sales Manager *Harry E. Martin*, with downtown offices in the Stephenson Building.

THE FYR-FYTER COMPANY'S family of more than 1200 fire protection products now includes *Globe Automatic Sprinkler* equipment among its brand names. The Fyr-Fyter Company recently completed purchase of the 43-year-old sprinkler company which manufactures a complete line of sprinkler equipment approved by both Underwriters' Laboratories and Factory Mutual Laboratories.

FRAM CORPORATION, Providence, R. I., leading manufacturer of automotive and industrial filters, has announced the enlargement of its Industrial Division. Changes include the appointment of regional industrial sales managers and the formation of a separate sales force to sell the industrial line exclusively, according to *William W. Eaton*, Industrial Division Sales Manager.

Four regional industrial sales managers have been named: *C. B. Gouert, Jr.*, 430 40th Street, Oakland 9, California, will direct West Coast sales from Seattle to San Diego.

P. S. Innis, 724 Cecile Place, Shreveport, Louisiana, will direct Southwest sales from New Orleans through Oklahoma and Texas.

C. N. Haskins, 1800 Marguerite Terrace, Park Ridge, Illinois, will direct Middle West Sales in Illinois, Indiana and Ohio.

J. S. Evans 3B-4 Redfield Village, Metuchen, N. J., will direct Northeast sales in New England, New York, New Jersey and Pennsylvania.

Robert J. Macke is the new general sales manager of *CASSIDY PRODUCTS, INC.*, *Charles Cassidy*, president, has announced. The St. Paul firm manufactures a complete line of electric floor maintenance machines and accessories. Macke will supervise a national sales organization of approximately 10 manufacturers' representatives and distributors throughout the United States and Canada. Previous to joining Cassidy Products, he was regional sales representative for various maintenance equipment firms in the Midwestern states.

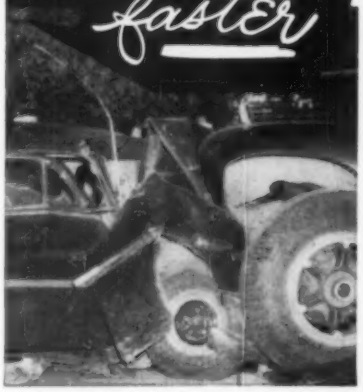
Cassidy Products, Inc., moved to greatly enlarged quarters at 2285 University Ave., this year.

AMERICAN OPTICAL COMPANY announces that its sunglass and safety products functions will no longer be combined as the *Safety-Sunglass Division*. The safety business will be a separate unit designated as the *Safety Division*. The Company's non-ophthalmic (non-prescription) sunglass business will be operated by the newly-formed *Cool-Ray, Inc.*

The move centers the safety business under *Charles H. Gallaway* as Vice President and General Manager of the new Safety Division. He headed the former Safety-Sunglass Division as Vice President and General Manager.

Recent studies by the Company show large potential growth in safety activities throughout the country. In addition to its industrial safety business, American

SOLVE RESCUE Problems *faster*



... with the P-F® RK-4 HYDRAULIC RESCUE KIT

You'll get the most out of every life-saving second working with the P-F RK-4 Hydraulic Rescue Kit. It's *faster* . . . not only for highway accident work, but for train and plane wrecks, collapsed buildings, cave-ins, industrial accidents — any emergency. This compact 51-piece kit includes fast-action 7½ ton hydraulic jack and 48 versatile attachments, each designed to do its job with maximum speed and efficiency. A "positive action" kit . . . thoroughly dependable whenever speed means life. Mail coupon for details.

H. K. PORTER, INC.
SOMERVILLE 43, MASS.
Please send me Rescue Kit Folder.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

(Use Key # R-15 on Inquiry Card on page 1)

BEAT THE HEAT! USE HAV-ALIFT SALT!

It's common knowledge that excessive perspiration causes loss of body salts which in turn slows down the normal body processes. This causes workers to lose pep and energy and production decreases.

To restore this lost salt, install Hav-aLift Salt Tablets in disposable dispensers. Hav-aLift is the most effective and economical method of replacing Salt and they dissolve evenly over a regulated period thus eliminating nausea and the bitter salt taste.

Write today for descriptive literature and the name and address of the dealer nearest you!

A. E. HALPERIN CO., INC.
BOSTON 18, MASS.
"Your Safety—Our Business"

(Use Key # R-31 on Inquiry Card on page 1)

THE POSITIVE LADDER SAFETY DEVICE

CLIMBING MADE SAFE!
If climber starts to fall, device locks in a notch automatically, instantly. Holds securely. Limits fall to 7 inches.

PREVENTS DEATH AND INJURIES — FROM FALLING

AUTOMATIC, POSITIVE. Will instantly catch and hold workman if he starts to fall, **even if unconscious.** Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 10 years. Approved by Safety Engineers and Govt. Agencies throughout country. Patented. Manufactured only by

SAFETY TOWER LADDER CO.
1024 Burbank Blvd., P.O. Box 1052
BURBANK, CALIFORNIA

(Use Key # R-32 on Inquiry Card on page 1)

Optical Company believes it can expand into other safety and protective product areas.

The Company also believes that separation of sunglass from safety functions is desirable because of rapid development of its sunglass business.

Cool-Ray, Inc. will be headed by *Howard E. Oakes* of Columbus, Ohio, as General Manager. Mr. Oakes, a native of Concord, N. H., has had extensive experience in sales and merchandising with Firestone Tire and Rubber Company, Spiegels, Inc., Montgomery-Ward, and most recently with Westinghouse Electric Corporation as Manager of National Sales Accounts.

Martin Hirschorn, president of the National Noise Abatement Council, recently presented the Council's Certificate of Award to the *GENERAL RADIO COMPANY*. Receiving the award was A. E. Thiessen, vice president of General Radio.

The Award, one of several presented to industry during the past year, was presented to the Cambridge firm "For providing pioneering service in the development and distribution of superior quality technical literature on sound measurement and noise abatement. It has cooperated extensively with various committees to establish standards for acoustical measurement and instrumentation." General Radio Company has long been active in the field of noise and vibration instrumentation and standardization. The company has also published "The Handbook of Noise Measurement" by A. P. G. Peterson and Leo L. Beranek, and "The Measurement of Noise."

The Noise Abatement Council has been in existence since 1941. Annually it sponsors National Noise Abatement Week and awards Achievement Plaques to cities and communities adjudged doing outstanding noise abatement work. Of recent years, The Council also has given awards to industries and other organizations which through their products and activities contribute to the cause of reduced noise.

The appointment of two new sales representatives in the New York City area has been announced by *LEWIS-SHEPARD PRODUCTS, INC.*, Watertown, Mass., producer of electric fork trucks and related materials handling equipment.

Harry J. Schum and *K. Frank Larkin, Jr.*, will have headquarters in Lewis-Shepard's New York District Sales Office, 3730 Tonnelle Ave., North Bergen, N. J.

Mr. Larkin will cover all of Long Island, while Mr. Schum will be responsible for L-S sales in upper Manhattan, the Bronx and Westchester County.

Charles W. Neilson has been appointed a Safety Products Representative by the *BAUSCH & LOMB OPTICAL COMPANY*, Rochester, New York. He will work in conjunction with Bausch & Lomb safety products dealers in an area which includes the lower peninsula of Michigan, Northwest Ohio, including Cleveland and Akron and Northeast Indiana. Mr. Neilson will be a factory representative contacting industries in these areas concerning safety eyewear and vision testing instruments for both industries and schools. He has had over eight years of experience selling safety products in the Detroit area, and for the past 10 years he has made his home in Detroit.

Lewis J. Langeness, Sales Manager of *WILSHIRE POWER SWEEPER CO.*, of Elgin, Illinois and Glendale, California, has announced the appointment of the *Columbia Floor Equipment Co.*, of 540 Riverdale Drive, Glendale, California, as its Southern California distributor for its line of industrial power sweepers. Columbia, manufacturer of floor care products for industrial, commercial and institutional use, will maintain a complete sales office, showroom, service shop and parts depot at the Riverdale Drive address. *George Yates, Jr.*, General Manager, will supervise the sale and promotion of the Wilshire line.

Exide Industrial Division of *THE ELECTRIC STORAGE BATTERY COMPANY*, Philadelphia, becomes the exclusive marketing organization for battery-charging equipment manufactured by *THE ELECTRIC PRODUCTS COMPANY*, Cleveland, following an agreement signed by the two companies. Under the agreement, Exide assumes complete marketing functions—sales, advertising, promotion, market research, warehousing, field engineering—in addition to service and maintenance of the charging equipment.

Safety Appointment

D. N. Babb has been named safety administrator for *ELECTRO METALLURGICAL COMPANY, Division of UNION CARBIDE CORPORATION*, according to an announcement by J. F. Graham, manager of industrial relations. Mr. Babb holds a bachelor of science degree in industrial engineering from Purdue University. Following his graduation in 1952, he joined Electromet as an administrative assistant in the safety department at the company's Alloy, W. Va., plant. He became supervisor of safety in 1955. Mr. Babb will be located at Electromet's safety headquarters in Niagara Falls, N. Y.

Thanks largely to an active safety program, 1957 was the safest year in the history of the Alloy plant. The more than 2,000 employees established a new Electromet safety record by working more than 4,600,000 man-hours without a lost-time accident.

Material appearing in this section is published as information and is not intended to imply endorsement or guarantee by SAFETY MAINTENANCE.

To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.

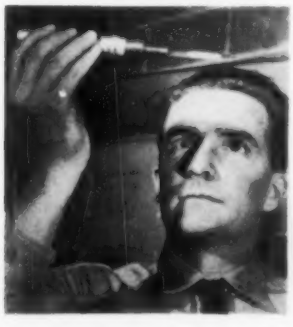
what's new for JUNE

CARBON MONOXIDE TESTER

(Use Key # 766 on Inquiry Card on page 1)

A LOW-COST, dual-purpose carbon monoxide tester which makes it possible to detect CO concentrations right in the engine exhaust stream as well as in room atmospheres is being marketed by Oxy-Catalyst, Inc. The direct-reading unit shows at a glance whether carbon monoxide is above or below safe concentration levels and also indicates the approximate percentage concentration. The device, called the "Oxy-Monoxo," will detect carbon monoxide in the approximate range of 100 to 1000 parts per million.

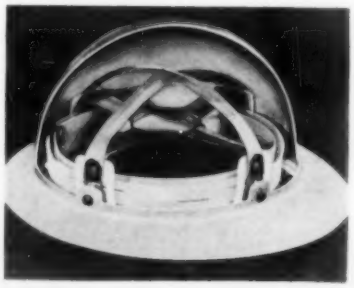
The CO detector kit consists of a push-button operated aspirator pump with a connector for holding the detector tube; 24 replaceable sealed glass detector tubes containing the yellow, chemical-gel detector chemical; and six rubber caps for capping detector tubes. The tester is simple to operate. A detector tube, ends broken off, is inserted into the detector. Releasing the pushbutton on the detector pump barrel then draws an air sample through the chemical. The CO discolors the chemical. The length of the discolored portion shows the concentration. Smoke, fumes, gases other than carbon monoxide or temperature variations experienced in testing will not affect readings. The pocket-sized detector kit also can be used for field-checking the efficiency of catalytic purifiers.

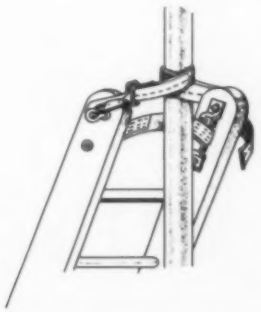


NEW CONSTRUCTION FOR SAFETY HATS

(Use Key # 767 on Inquiry Card on page 1)

A NEW SUSPENSION for the "M-S-A Skullgard" now makes it almost impossible for the wearer to adjust it in an improper, unsafe manner. The new "fixed crown" consists of a dual suspension within the hat. One suspension, which is permanent, assures the wearer of at least one and one-fourth inches for safety clearance, while the other one can be adjusted for the wearer's comfort. Mine Safety Appliances Company developed the new dual suspension, which meets all Federal specifications. It is said to offer six major features: Fixed crown clearance, Easily inserted and removed locked-in liner, Elimination of pressure points, Air cushion effect, Extreme ease of size adjustment, Plastic composition for cleanliness and long wear. The suspension eliminates the "pressure points" which were often uncomfortable to workmen. Four wide snaps have a positive spring steel lock-in catch, which permits easy removal of the suspension, but prevents accidental detachment. The sweatband has an air cushion effect which gives added comfort. Size adjustments can be made in seconds through a simple "collar-button" adjustment. The grey sweatband is supported by four plastic web cradle straps which form the new fixed-crown suspension. The complete assembly is mildew-proof, acid-proof and oil-proof, as well as easily sanitized. Both the Skullgard shell and the new suspension are available in three sizes, extra small, standard, and extra large. The standard size will fit perfectly about 95 per cent of wearers. All others can be accommodated comfortably and safely with the extra small or extra large sizes.





NEW LADDER LASH PROVIDES SAFER LADDER ANCHORAGE

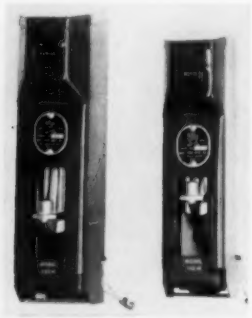
(Use Key # 768 on Inquiry Card on page 1)

ROSE MANUFACTURING Company announced the development of the new "Safe-Hi" Ladder Lash, designed to provide safe ladder anchoring—vertical or horizontal to posts, poles and similar anchors. The new ladder lash is designed to eliminate the uncertainties of hand-tied knots. It can be attached to any ladder, just by drilling four holes and bolting the ladder lash in place. The new lash is made of parachute webbing of 2800 pound tensile strength, with a forged steel snap that locks into eye bolt on the ladder rail. The workman simply passes the strap around the anchor and snaps to the eye bolt. The tab end of the strap is then pulled through the adjustment slide until it is taut. This ladderlash can be placed around anchors up to 16" diameter.

LENS TISSUE IN DESK-SIZE BOX

(Use Key # 769 on Inquiry Card on page 1)

THE WILKINS CO., Inc. has made "K-Lens-M Lens Tissue" available in a new desk-size box. This new packaging brings added convenience to wearers of glasses or goggles, and is said to be ideal for use in both office and plant. A full 200 sheets of tissues are inter-folded in the box, and feed one at a time through a patented opening. According to the manufacturer, the tissue is lint-free, long-fibred, absorbent, and strong. Used with "K-Lens-M Lens Cleaner," the tissues are claimed quickly and effectively to clean all types of personal and protective eyewear, both glass and plastic; lenses are left with no film, haze, or streaking.



NEW EXTINGUISHER WEIGHING DEVICE

(Use Key # 770 on Inquiry Card on page 1)

THE NEW "Silent Sentry," a unique and extremely practical CO_2 fire extinguisher weighing device is claimed to eliminate any possibility of human error in periodic fire extingusher inspection. Tests indicate that many CO_2 bottles lose much of their effective fire fighting charge within weeks after an inspection and re-charge and long before the next scheduled inspection. This device gives positive assurance that extinguishers contain an effective charge ready for instant emergency use. A clearly observable indicator on the face of the weighing unit will register "Refill" when approximately one-fourth of the CO_2 charges escape. In other words, a potential and dangerous condition is indicated before the extinguisher has lost its effectiveness for controlling a fire. The "Silent Sentry" is manufactured in two basic sizes which will handle all types of fire extinguishers now being manufactured. The patented weighing device is designed to provide easy, rapid wall installation. No separate mounting brackets or attaching accessories are necessary. There are no parts to wear or non-perform and it is completely corrosion and rust proof. Made by Mel-Rod Mfg. Co.

SELF-ADJUSTING CHAIN INSTEP STRAP

(Use Key # 771 on Inquiry Card on page 1)

WHEELER PROTECTIVE Apparel, Inc. announces a new feature incorporated in its line of industrial leggings. This development, a spring tension instep chain, will mean comfort and safety for the industrial worker. The instep chain strap readily adapts to any size shoe and eliminates the nuisance of adjusting conventional instep straps. More importantly, the chain instep strap positively positions the flare on the top of the shoe where it will give maximum protection, according to the manufacturer. The chain instep strap does not hamper the quick release feature of Wheeler leggings, and it is designed to remain effective throughout the life of the legging. This feature is currently being used on conventional knee length (12" high) leggings, and can be adapted to spats and hip leggings also.

SAFETY TREADS TESTED WITH OIL

(Use Key # 772 on Inquiry Card on page 1)

"STAIRMASTER" SAFETY TREADS of aluminum alloy base with abrasive ribs which provide anti-slip traction even when covered over with slippery motor oil have been developed by the manufacturer, Wooster Products Inc. The safety treads are constructed of heat-treated extruded aluminum alloy and have locked-in ribs of diamond-hard abrasive grit. A heavy duty safety tread for commercial, industrial, and institutional buildings which is easily superimposed over worn or slippery stairs of masonry or wood. Superimposing this type of tread enables the building management to comply with safety and building codes without the expensive rebuilding of worn or slippery stair treads. "Stairmaster" safety treads are 9" wide with tapered beveled back and are furnished in the exact lengths required for the individual stairway. It is customary to have the safety treads 4" shorter than the overall length of the existing treads to provide 2" of sweeping space at each end.

SERIES "C" CENTRIFUGAL COLLECTOR

(Use Key # 773 on Inquiry Card on page 1)

A NEW LINE of series "C" centrifugal collectors, covering a wide range of industrial application, is now available from The Kirk & Blum Mfg. Co. Included are two design types, totaling 41 sizes. The collectors offer highly efficient air cleaning and dust collection using centrifugal force, with minimum cost and maintenance involved. The collectors are intended for shavings, sawdust, polishing, buffing and similar uses where the dust size will run above 325 mesh (44 microns), but may contain small percentages down to 20 microns. Air inlets and dust outlets are of generous size to handle the usual stray bulk objects. They are also used on shredded plant refuse. At standard air density and normal rating, these collectors operate at only 2" water column S.P. Capacities from 350 to 54,500 C.F.M. are available. Equipped with a relatively small diameter, long cone, other collectors are high centrifugal force units designed primarily for dust sizes below 44 microns, such as coal, foundry, flour, cement and the like. Normally rated at 4" water column S.P. at standard air density, these collectors can be utilized for extremely high efficiency down to 20 microns on all sizes.

NEW DRY CHEMICAL EXTINGUISHER

(Use Key # 774 on Inquiry Card on page 1)

A NEWLY designed, valve-in-head, cartridge-operated dry chemical extinguisher is now available from The General Fire Extinguisher Corporation. One valve punctures the cartridge and simultaneously provides squeeze-grip control of powder flow . . . faster and simpler operation without shut-off nozzle. Greater powder spread and range is accomplished by use of the "trijet" horn. Available in 4, 10, 20, and 30 lb. models these new units have stainless steel shells, making them lighter in weight, higher in tensile strength.

WATERLESS CLEANER DISPENSER

(Use Key # 775 on Inquiry Card on page 1)

NO GEARS, cranks, levers or spring-pressure plates are said to complicate the new PHLO Waterless Cleaner Dispenser. According to The Chemical Corporation, makers of PHLO, the push-button operation of the double-acting pump makes this new dispenser the simplest on the market. A disposable refill can drops into the corrosion-free aluminum body and an accurately-metered application is dispensed with each stroke. Freedom from maintenance problems, clogging and dripping, plus virtually endless durability are other features.

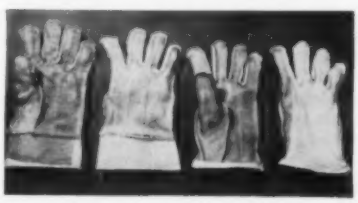
MULTIPLE-TOOTH CUTTER GUARD

(Use Key # 776 on Inquiry Card on page 1)

A SAFETY DEVICE for protecting multiple-tooth cutters, the operators, and the machines, has been designed and manufactured by Royal Design & Manufacturing, Inc. They are called, "Cy-Co-Trol Cutter Guards." Each is designed as a permanent accessory for a cutter, and is shipped ready for immediate use. These new guards eliminate the need for costly applications of hot-dip plastic, now commonly applied to cutters before storage. Furthermore, the costly time consumed in stripping the plastic before the cutter can be used, is also eliminated.

The cutter guards protect the hands of the operator from the sharp edge of the cutter teeth, while assembling or disassembling the cutter at the machine spindle, and, while handling the cutter in the cutter grind department. The guards also protect the cutter blades in transportation, while assembling or disassembling at the machine spindle, and while handling in the cutter grind department. The guards protect the finished parts of machine from contact with the cutter blades during machine setup.

The cutter guard is made of spring steel and is simple to operate. The cutter is held by a spring pressure band, to which loops are attached for easy assembly and disassembly. These loops are used for locking the guard, and to facilitate lifting the cutter to the machine. A quick-action bolt fastens through the loops of the guard, locking the guard to the cutter. The unit is completely coated with a plastisol material, to facilitate handling, and to protect the teeth of the cutter. The cutter diameter, or tool numbers, are permanently engraved in the plastisol material. Guards are available for any size cutter, from 4" to 20" in diameter.



STEEL MESH LINED WORK GLOVES

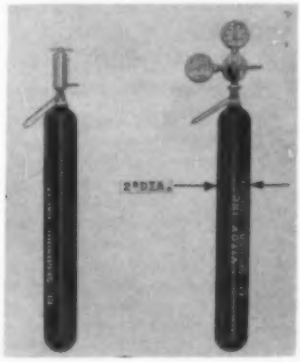
(Use Key # 777 on Inquiry Card on page 1)

NEW SAFETY gloves with protective steel mesh inner liners are announced by Safety Clothing and Equipment Company. Known as "Mesh-Gard," the new gloves feature linings made of multi-layered fine flexible steel mesh. Developed for the sheet metal divisions of the steel and stamping industry, the new protective inner lining material is said to protect workers' hands from sharp, jagged cuts. The new gloves are available in four styles.

NEW, LIGHT WEIGHT, PORTABLE OXYGEN EQUIPMENT

(Use Key # 778 on Inquiry Card on page 1)

VITOX, INC. has announced the introduction of a new line of light weight (3½ lbs.) portable oxygen equipment. Three models have been announced—a standard model with regulator and mask; a deluxe model with regulator, pressure gage and mask; and a custom model which includes a liter flow gage to measure oxygen flow rate. Each of the models is said to dispense oxygen up to 140 minutes depending on



bottle size and flow rate setting. Accessories for this line of equipment include a filler adapter, a plastic carrying case, etc. The regulator carries the Underwriter's Laboratory approval to assure safe operation and the cylinder is approved by the Interstate Commerce Commission.

PLANT MARKING KIT

(Use Key # 779 on Inquiry Card on page 1)

TODAY'S EFFICIENT industrial plant should require its equipment to be clearly, legibly and uniformly marked for ease in servicing. The Meyercord Company has developed a new "Plant Marking Kit" containing 474 individual markings, assorted over the 59 most essential plant operational subjects. The markings in the kit are special-type "I" transfers, designed for quick, easy application and permanent adhesion to either painted or bare metal surfaces, curved or flat. The markings are not affected by prolonged contact with moisture. Among the advantages cited by the manufacturer are absolute legibility, ideal selection, and a standardized marking method tested and approved by numerous plants. The cost of these markings is estimated to be approximately one-tenth the cost of hand painting or stenciling.

CHEMICALLY RESISTANT FLOOR PAINT

(Use Key # 780 on Inquiry Card on page 1)

A CHEMICAL RESISTANT enamel for use on volume-traffic wood and concrete floors is announced by The Garland Co. Known as "Granitite," it contains an entirely new synthetic resin base that is reputed to withstand scuffing, pounding and abrasive action of heaviest foot traffic. It also prevents dusting of concrete floors and dirt accumulation in porous wood floors. According to the manufacturer, it is unaffected by repeated scrubbings with strong caustic cleansers and heavy-duty floor-cleaning machines. In addition, it resists destructive action of oils, greases, solvents and mild industrial acids. Spilled liquids cannot penetrate its surface.

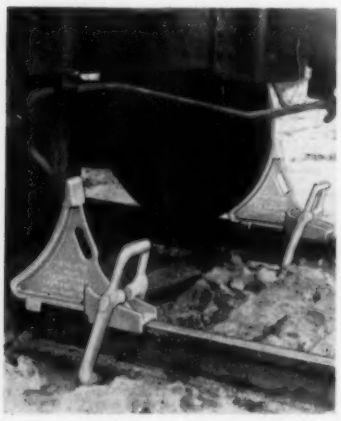
This paint is recommended for protecting floors in plants, offices, hospitals, bakeries, food plants, garages, etc. Because of its unusual chemical resistance, it is ideal for locker rooms and washrooms. Easily applied by brush, roller or spray, "Granitite" is available in tile red, warm gray, green, medium gray and white. It dries to a hard finish overnight. 1-gallon cans, 5-gallon pails, 55-gallon drums.

PORTABLE WHEEL STOP

(Use Key # 781 on Inquiry Card on page 1)

A COMPLETELY NEW device that should find wide acceptance in industrial and railroad fields is a portable car stop, designated the "Porta-Stop" Wheel Stop by its manufacturers, Calumet Steel Castings Corporation. The wheel stop consists of a cast steel, rail and wheel conforming block which, although it weighs approximately 40 pounds, is easily carried by a convenient cast-in hand hole. This block portion is positioned on the rail by use of twin, interlocking, heat treated, alloy steel, clamp handles that join to form an extended loop about the block and rail.

Instant assembly or disassembly of the clamp is accomplished by revolving the two parts, each about 30°. One block will suffice for all sizes of rail. Two sizes of clamps are available for rails up to 110 pounds and one for rails over the 110 pound class. One pair of "Porta-Stop" Wheel Stop assemblies consists of two blocks and two pairs of identical half-clamps, and weighs 120 pounds.



PORTABLE RESUSCITATOR UNIT

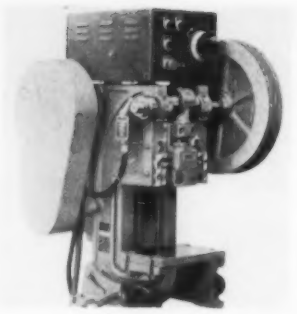
(Use Key # 782 on Inquiry Card on page 1)

ANYONE CAN operate the newly designed, patented, "Schuco-Ambu" life-saving equipment. Consisting of a manually operated self-inflating bag resuscitator and a foot-operated suction pump, this equipment is always ready for an emergency and does not require oxygen cylinders, electricity, or water pressure. Small, compact and light in weight, this equipment is designed to save more lives by saving valuable time. The resuscitator, is ready for use instantaneously. There is no need for connections or setting of gauges. The unit is small and compact. It provides finger-tip control and can be operated for hours without tiring. One compression of the bag provides up to 1.3 liters of air. A special bag provides for oxygen-enriched mixtures. Physiologically correct rhythm is accomplished by self-inflating bag. The suction pump, weighs only 4½ lbs. Foot-operated it provides negative pressure of 280mm to 300mm of mercury. There is no need for electric motors or water pressure. The unit will operate with a full bottle or with no bottle at all. Unit avaliable from Schueler & Co.

8-TON PUNCH PRESS FOR SAFE DIE WORK

(Use Key # 783 on Inquiry Card on page 1)

KENCO MANUFACTURING Company announces a new 8-ton "Electro-Safe" Punch Press described by the Division of Industrial Safety, State of California, as "completely safe in the die area." Using the press for single-trip operation, the operator must depress two widely separated hand controls. Hence operator's hands cannot possibly be in the danger area during the punching period—a fact which is said to account for the 100% safety record of these presses. Flywheel-in-motion and clutching mechanism hazards are eliminated by the use of a high-starting torque motor which delivers power directly to the crankshaft. In single-trip work, the motor goes dead after every cycle, so that dangerous double tripping cannot occur. When power is disconnected, or if it fails, a heavy-duty brake is applied automatically. In addition, the press can be stopped instantly at any point in the stroke cycle by a "Stop" button. Any press failure, either mechanical or electrical, must fail safe. The press can be locked in any desired setting—continuous, single, inch, or foot control—by authorized personnel. To protect the die, a safety stop switch in the control panel enables any type of mechanical or electrical detectors to stop the ram immediately if imperfect feeding or stamping is detected. This eliminates the need for an operator on automatic feeding.

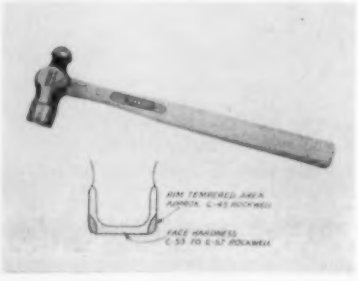


SAFER BALL PEEN HAMMERS

(Use Key # 784 on Inquiry Card on page 1)

STANLEY TOOLS, division of The Stanley Works has just introduced to the market, a new safety ball peen hammer designed to minimize chipping of critical areas and assure safety for its users. Each hammer is individually treated on the chamfer by induction heat treatment to produce a lower degree of hardness on the rim of the hammer face where it is most needed.

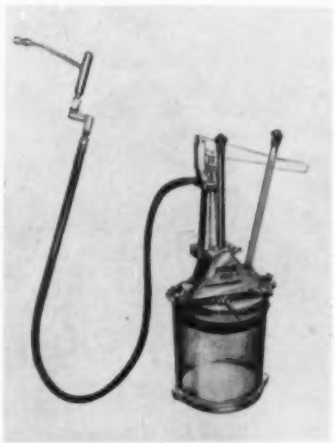
Available in several weights with polished and black finishes, the hammers have drop-forged heads, hardened and tempered on the faces and peens. All heads have been super-heat treated and peens are perfectly ball shaped. Multiple wedging secures the heads and selected hickory handles are processed to prevent shrinking.



NEW PUMP FOR INDUSTRIAL LUBRICANTS

(Use Key # 785 on Inquiry Card on page 1)

LUBRICATION OF machinery and equipment can be accomplished faster, easier, more effectively and economically, it is claimed, with the new "Lubri-Flo" pump just introduced by Force-Flo, Inc. The new pump mechanism, made to fit 25 pounds, 35 pounds and 5 gallon pails, makes it possible to apply lubricants, in any consistency, from the original container to the point of application without the need of



a hand-type grease gun. Materials that will or will not seek their own level and lubricants within the N.L.G.I. range 0, 1, 2, 3, 4, 5 are easily dispensed, under all weather conditions. This eliminates the necessity for maintaining a supply of lubricants in both winter and summer grades.

The new pump consists of a high volume pressure system and a high pressure pumping mechanism, complete with a hose and nozzle assembly. It is operated by placing the pumping mechanism on top of the material in the original container. Clamps on the pump unit securely hold the unit in place. Three strokes of the handle, actuating a manually operated large neoprene piston, pressurizes the pail to prime approximately 5 pounds of material. This assures a constant supply of material to the high pressure pump. By actuating the high pressure pump handle, material is delivered through the unit nozzle to the point of application, at the rate of one-third ounce of material per stroke. Material is placed on the lubricating target with little effort. The nozzle weighs only one pound and swivels freely to permit easy, non-fatiguing use. Because the entire "Lubri-Flo" unit is portable, it is moved about from place to place with ease. The pump adapts to all types of lubricating fittings.

REINFORCED PLASTIC AND FIBERGLASS LADDERS

(Use Key # 786 on Inquiry Card on page 1)

A NEW, LIGHTWEIGHT ladder, made from fiberglass reinforced plastic, is now in full production, according to its manufacturer, Hopfeld Industrial Manufacturing Company. Straight and extension ladders up to 28-feet in length and made with fiberglass reinforced Polylite polyester resin supplied by Reichhold Chemicals, Inc. combine protection against electrocution with lightness and ease of handling.

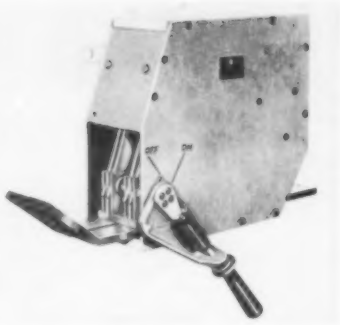
The "Himco" ladder is made with RCI's 8006 Polylite polyester resin and its rungs are bonded with 6140 Polytool epoxy resin. Fiberglass construction is used for both rungs and side rails, which are hollow except for a W-shaped core. The side piece measures 1 x 3 inches. The extension models have a specially designed lock which the manufacturer claims is superior to any other extension ladder lock on the market. The lock automatically snaps onto a rung when the rope is released. A slight tension on the rope acts as a brake during lowering. Sandlike particles imbedded in the rung also provide exceptional wet or dry protection against slipping. Impervious to weather, corrosion and acid, the ladder is available with yellow side rails and

black steps. Height adjustment and the rung lock control are actuated by the rope, which is easily attached and removed. One man can carry and handle the ladder. Straight ladders weigh about one-and-a-half pounds per foot.

ACID RESISTANT COATING

(Use Key # 787 on Inquiry Card on page 1)

"AMAZITE"—a pure plastic resin recently announced by Hallemite Mfg. Co.—may be applied right over new or old concrete, terrazzo, brick, stone, marble, slate, plaster, metal or wood to provide both protection against destructive acids and caustics, as well as resistance to abrasion. Thick applications may be trowelled on to transform rough, pitted floors into smooth traffic areas. Surfaces in good condition may be protected and preserved by brushing on the treatment. The coating hardens overnight into a dense, dustless, film that does not chip. Three formulations—for trowel, paint brush or spray gun application—are available in Clear (Amber), Tile Red and Cement Gray colors.



NEW FEEDER SAFETY SWITCH

(Use Key # 788 on Inquiry Card on page 1)

DESIGNED TO PROTECT expensive feeder systems and assure the safety or operating personnel, a new 3000-amp feeder safety switch is announced by Ohio Brass. Thoroughly tested for over a year under actual service conditions, the switch offers one solution to the growing problem of interrupting big electrical loads safely. During installation, no soldering is required since solid cast bronze terminals hold feeder cable with a set screw pressure. Hard, cold-rolled contact jaws maintain strong pressure on switch blade to sustain contact through years of rough usage. For added safety, buffer plates of asbestos extend on either side of the contact jaws. Pitting of blade or jaws is prevented by a heavy steel operating spring that gives quick make and break contact. Insulated, fire-proof case is bolted through both sides for increased strength.

PORTABLE LITTER

(Use Key # 789 on Inquiry Card on page 1)

DESIGNED TO meet the stringent requirements of the battlefield, the "Ambulitter," product of the Ambulitter Corporation, is said to cut manpower needed to move litter patients by more than 50%. By mounting low-pressure pneumatic rollers and a light-weight frame to the standard army litter, one person can quickly and easily move casualties over any terrain —steep hills, rocks, swamps, sand, mud, or water without causing additional injury to the patient. Simple and light in design, the unit "knocks-down" for easy transportation and storage, complete with carrying case, lending itself to fire-fighting and rescue work, state and local police work, civil defense and Red Cross emergencies, or life guard and beach rescue work.

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TO EVERY ONE OF YOUR EMPLOYEES!

Safety is made attractive...vivid...colorful...

each worker clearly sees how safety benefits him.

You get enthusiastic safety cooperation instead of

tolerance...from every employee...every month.

YOUR
Safety News
THE JOHN DOE COMPANY, INC.
PROTECT YOURSELF
3
WAYS
There are three safe practice ways that do the most good in keeping free of accidents, all based on your personal desire to know safety and keep yourself safety-minded by studying the hazards of your work. They are:
1 Make sure all guards are in place and working and wear the personal protective equipment your job requires.
2 Learn the safe way to do a job and do it just that way.
3 Report, avoid or eliminate all unsafe conditions.
As we see it: Safety is part of every job and like any craft it requires skill.
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Size 8½" wide x 8½" deep

...talks the worker's language!

Full of color, pictures, humor and snap, it makes safety interesting and down-to-earth. 12 times a year it covers every accident hazard. Nationwide, leading industrial firms state it's the *only safety paper their employees will read* . . . and take home to their families.

It gives you the advantages of personal contact, saving time and money. When it prevents one Lost Time accident, it has more than paid its cost for the year. Try it . . . it works!

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makes YOUR SAFETY NEWS your own publication . . . a good-will ambassador . . . another force for better industrial relations.

Every employee feels bucked-up by a note from the boss. If you desire, your facsimile signature can be printed here.

Your Signature Here

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Your Safety News is designed to promote better employer-employee relations. Every item is carefully weighed from this viewpoint.

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SAFETY SHOES
FALLS
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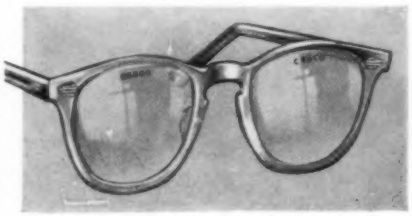

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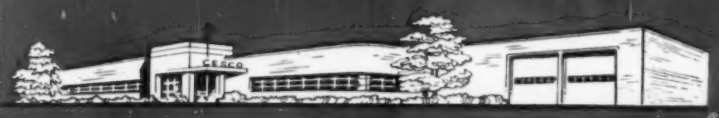

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